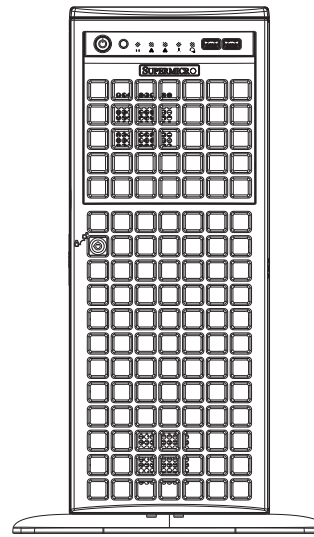
SUPERMICRO®

SC747 CHASSIS Series



SC747TQ-R1400B SC747TQ-R1620B

SC747BTQ-R1K62B

USER'S MANUAL

1.0b

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WARNING: Handling of lead solder materials used in this product may expose you to lead, a chemical known to the State of California to cause birth defects and other reproductive harm.

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Preface

About This Manual

This manual is written for professional system integrators and PC technicians. It provides information for the installation and configuration of the SC747 4U chassis. Installation and maintenance should be performed by experienced technicians only.

Supermicro's SC747 server/workstation chassis is truly industry's most powerful high-performance server chassis. The SC747 offers eleven full-height, full-length PCI-E expansion slots and four sets of 6-pin and 8-pin power connectors to support up to four double-width GPU cards. The SC747 comes equipped with optimized redundant high-efficiency (93%) Gold Level 1400W or 1620W Platinum Level power supplies with PMBus support and optimized thermal solutions with four hot-swappable cooling fans and two hot-swappable exhaust fans. In the case of the SC747BTQ-R1K628B this chassis also supports the option for up to two additional external rear fans. All of these fans incorporate advanced fan speed controls to accommodate the most demanding GPU applications. Its eight hot-swappable SAS/SATA hard drives offer exceptional storage capacity, and three 5.25" storage modules can rotate 90° to accommodate tower or rack-mounting configurations.

This document lists compatible parts available when this document was published. Always refer to the our Web site for updates on supported parts and configurations.

Manual Organization

Chapter 1 Introduction

The first chapter provides an overview of the main components included with this chassis and describes the main features of the SC747 chassis. This chapter also includes contact information.

Chapter 2 Standardized Warning Statements for AC Systems

This chapter lists warnings, cautions, and system safety. You should thoroughly familiarize yourself with this chapter for a general overview of safety cautions that should be followed before installing and servicing this chassis.

Chapter 3 Chassis Components

Refer here for details on this chassis model including the fans, bays, airflow shields, and other components.

Chapter 4 System Interface

This chapter provides details on the system interface, which includes the functions and information provided by the control panel on the chassis as well as other LEDs located throughout the system.

Chapter 5 Chassis Setup and Maintenance

Chapter 5 features detailed information on this chassis. You should follow the procedures given in this chapter when installing, removing, or reconfiguring your chassis.

Chapter 6 Rack Installation

Refer to this chapter for detailed information on chassis rack installation. You should follow the procedures given in this chapter when installing, removing or reconfiguring your chassis into a rack environment.

Appendices

This section lists compatible cables, power supply specifications, and compatible backplanes. Not all compatible backplanes are listed. Refer to our Web site for the latest compatible backplane information.

Appendix A Chassis Cables

Appendix B Power Supply Specifications

Appendix C SAS-747TQ Backplane Manual

Appendix D M35S and M35T1 Mobile Rack Specifications

Appendix E M35TQ Mobile Rack Specifications

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Chapter 1

Introduction

1-1 Overview

Supermicro's SC747 4U chassis features a unique and highly-optimized design. The chassis is equipped with a high-efficiency power supply. High-performance fans provide ample optimized cooling for the system and eight hot-swappable drive bays offer maximum storage capacity in a 4U form factor.

1-2 Shipping List

Please visit the following link for the latest shipping lists and part numbers for your particular chassis model http://www.supermicro.com/products/chassis/4U/?chs=747.

SC747 Chassis				
Model	**CPU**	**HDD**	**I/O Slots**	**Power Supply**
SC747TQ-R1400B	DP/UP	8x SAS/SATA	11x FF	1400W Redundant (Gold Level)
SC747TQ-R1620B	DP/UP	8x SAS/SATA	11x FF	1620W Redundant (Gold Level)
SC747BTQ-R1K62B	DP/UP	8x SAS/SATA	11x FF	1620W Redundant (Gold Level)

Legend

UP = Single Processor Support
DP = Dual Processor Support
FF = Full-height, Full-length

1-3 Chassis Features

The SC747 4U high-performance chassis includes the following features:

CPU

The SC747 chassis supports single or dual processors.

Hard Drives

The SC747 chassis features eight slots for SAS/SATA drives. These drives are hot -swappable. Once set up correctly, these drives can be removed without powering down the server.

I/O Expansion Slots

Each version of the SC747 chassis includes eleven (TQ model) or nine (TG model) full-height PCI slots for expansion cards.

Peripheral Drives

Each SC747 chassis provides three 5.25" peripheral drive bays for DVD-ROM/DVD-RW drives, or additional hard drives.These bays are in a rotating cage that allows for the chassis to be configured in both tower and rack mounted environments.

Other Features

Other on-board features are included to promote system health. These include four cooling fans, two exhaust fans, a convenient power switch, reset button, and five LED indicators.

1-4 Contacting Supermicro

Headquarters

Address:	Super Micro Computer, Inc. 980 Rock Ave. San Jose, CA 95131 U.S.A.
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Fax:	+1 (408) 503-8008
Email:	marketing@supermicro.com (General Information) support@supermicro.com (Technical Support)
Web Site:	www.supermicro.com

Europe

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Web Site:	www.supermicro.com.tw
Technical Support:	
Email:	support@supermicro.com.tw
Tel:	+886-(2)-8226-3990

Notes

Chapter 2

Standardized Warning Statements for AC Systems

2-1 About Standardized Warning Statements

The following statements are industry standard warnings, provided to warn the user of situations which have the potential for bodily injury. Should you have questions or experience difficulty, contact Supermicro's Technical Support department for assistance. Only certified technicians should attempt to install or configure components.

Read this appendix in its entirety before installing or configuring components in the Supermicro chassis.

These warnings may also be found on our web site at http://www.supermicro.com/about/policies/safety_information.cfm.

Warning Definition

Warning!

This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents.

警告の定義

この警告サインは危険を意味します。

人身事故につながる可能性がありますので、いずれの機器でも動作させる前に、

電気回路に含まれる危険性に注意して、標準的な事故防止策に精通して下さい。

此警告符号代表危险。

您正处于可能受到严重伤害的工作环境中。在您使用设备开始工作之前，必须充分意识到触电的危险，并熟练掌握防止事故发生的标准工作程序。请根据每项警告结尾的声明号码找到此设备的安全性警告说明的翻译文本。

此警告符號代表危險。

您正處於可能身體可能會受損傷的工作環境中。在您使用任何設備之前，請注意觸電的危險，並且要熟悉預防事故發生的標準工作程序。請依照每一注意事項後的號碼找到相關的翻譯說明內容。

Warnung

WICHTIGE SICHERHEITSHINWEISE

Dieses Warnsymbol bedeutet Gefahr. Sie befinden sich in einer Situation, die zu Verletzungen führen kann. Machen Sie sich vor der Arbeit mit Geräten mit den Gefahren elektrischer Schaltungen und den üblichen Verfahren zur Vorbeugung vor Unfällen vertraut. Suchen Sie mit der am Ende jeder Warnung angegebenen Anweisungsnummer nach der jeweiligen Übersetzung in den übersetzten Sicherheitshinweisen, die zusammen mit diesem Gerät ausgeliefert wurden.

BEWAHREN SIE DIESE HINWEISE GUT AUF.

INSTRUCCIONES IMPORTANTES DE SEGURIDAD

Este símbolo de aviso indica peligro. Existe riesgo para su integridad física. Antes de manipular cualquier equipo, considere los riesgos de la corriente eléctrica y familiarícese con los procedimientos estándar de prevención de accidentes. Al final de cada advertencia encontrará el número que le ayudará a encontrar el texto traducido en el apartado de traducciones que acompaña a este dispositivo.

GUARDE ESTAS INSTRUCCIONES.

IMPORTANTES INFORMATIONS DE SÉCURITÉ

Ce symbole d'avertissement indique un danger. Vous vous trouvez dans une situation pouvant entraîner des blessures ou des dommages corporels. Avant de travailler sur un équipement, soyez conscient des dangers liés aux circuits électriques et familiarisez-vous avec les procédures couramment utilisées pour éviter les accidents. Pour prendre connaissance des traductions des avertissements figurant dans les consignes de sécurité traduites qui accompagnent cet appareil, référez-vous au numéro de l'instruction situé à la fin de chaque avertissement.

CONSERVEZ CES INFORMATIONS.

תקנון הצהרות אזהרה

הצהרות הבאות הן אזהרות על פי תקני התעשייה, על מנת להזהיר את המשתמש מפני חבלה פיזית אפשרית. במידה ויש שאלות או היתקלות בבעיה כלשהי, יש ליצור קשר עם מחלקת תמיכה טכנית של סופרמיקרו. טכנאים מוסמכים בלבד רשאים להתקין או להגדיר את הרכיבים.

יש לקרוא את הנספח במלואו לפני התקנת או הגדרת הרכיבים במארזי סופרמיקרו.

تحذير! هذا الرمز يعني خطر انك في حالة يمكن أن تتسبب في اصابة جسدية .
قبل أن تعمل على أي معدات،كن على علم بالمخاطر الناجمة عن الدوائر
الكهربائية
وكن على دراية بالممارسات الوقائية لمنع وقوع أي حوادث
استخدم رقم البيان المنصوص في نهاية كل تحذير للعثور ترجمتها

안전을 위한 주의사항

경고!

이 경고 기호는 위험이 있음을 알려 줍니다. 작업자의 신체에 부상을 야기 할 수 있는 상태에 있게 됩니다. 모든 장비에 대한 작업을 수행하기 전에 전기회로와 관련된 위험요소들을 확인하시고 사전에 사고를 방지할 수 있도록 표준 작업절차를 준수해 주시기 바랍니다.

해당 번역문을 찾기 위해 각 경고의 마지막 부분에 제공된 경고문 번호를 참조하십시오

BELANGRIJKE VEILIGHEIDSINSTRUCTIES

Dit waarschuwings symbool betekent gevaar. U verkeert in een situatie die lichamelijk letsel kan veroorzaken. Voordat u aan enige apparatuur gaat werken, dient u zich bewust te zijn van de bij een elektrische installatie betrokken risico's en dient u op de hoogte te zijn van de standaard procedures om ongelukken te voorkomen. Gebruik de nummers aan het eind van elke waarschuwing om deze te herleiden naar de desbetreffende locatie.

BEWAAR DEZE INSTRUCTIES

Installation Instructions

Warning!

Read the installation instructions before connecting the system to the power source.

設置手順書

システムを電源に接続する前に、設置手順書をお読み下さい。

警告
将此系统连接电源前,请先阅读安装说明。

警告
將系統與電源連接前，請先閱讀安裝說明。

Warnung

Vor dem Anschließen des Systems an die Stromquelle die Installationsanweisungen lesen.

¡Advertencia!

Lea las instrucciones de instalación antes de conectar el sistema a la red de alimentación.

Attention

Avant de brancher le système sur la source d'alimentation, consulter les directives d'installation.

יש לקרוא את הוראות התקנה לפני חיבור המערכת למקור מתח.

اقر إرشادات التركيب قبل توصيل النظام إلى مصدر للطاقة

시스템을 전원에 연결하기 전에 설치 안내를 읽어주십시오.

Waarschuwing

Raadpleeg de installatie-instructies voordat u het systeem op de voedingsbron aansluit.

Circuit Breaker

Warning!

This product relies on the building's installation for short-circuit (overcurrent) protection. Ensure that the protective device is rated not greater than: 250 V, 20 A.

サーキット・ブレーカー

この製品は、短絡(過電流)保護装置がある建物での設置を前提としています。

保護装置の定格が250 V、20 Aを超えないことを確認下さい。

警告

此产品的短路(过载电流)保护由建筑物的供电系统提供,确保短路保护设备的额定电流不大于250V,20A。

警告

此產品的短路(過載電流)保護由建築物的供電系統提供,確保短路保護設備的額定電流不大於250V,20A。

Warnung

Dieses Produkt ist darauf angewiesen, dass im Gebäude ein Kurzschluss- bzw. Überstromschutz installiert ist. Stellen Sie sicher, dass der Nennwert der Schutzvorrichtung nicht mehr als: 250 V, 20 A beträgt.

¡Advertencia!

Este equipo utiliza el sistema de protección contra cortocircuitos (o sobrecorrientes) del edificio. Asegúrese de que el dispositivo de protección no sea superior a: 250 V, 20 A.

Attention

Pour ce qui est de la protection contre les courts-circuits (surtension), ce produit dépend de l'installation électrique du local. Vérifiez que le courant nominal du dispositif de protection n'est pas supérieur à :250 V, 20 A.

מוצר זה מסתמך על הגנה המותקנת במבנים למניעת קצר חשמלי. יש לוודא כי המכשיר המגן מפני הקצר החשמלי הוא לא יותר מ-250 V, 20 A

هذا المنتج يعتمد على معدات الحماية من الدوائرالقصيرة التي تم تثبيتها في المبنى
تأكد من أن تقييم الجهاز الوقائي ليس أكثر من: 20A, 250V

경고!

이 제품은 전원의 단락(과전류)방지에 대해서 전적으로 건물의 관련 설비에 의존합니다. 보호장치의 정격이 반드시 250V(볼트), 20A(암페어)를 초과하지 않도록 해야 합니다.

Waarschuwing

Dit product is afhankelijk van de kortsluitbeveiliging (overspanning) van uw electrische installatie. Controleer of het beveiligde aparaat niet groter gedimensioneerd is dan 220V, 20A.

Power Disconnection Warning

Warning!

The system must be disconnected from all sources of power and the power cord removed from the power supply module(s) before accessing the chassis interior to install or remove system components.

電源切断の警告

システムコンポーネントの取り付けまたは取り外しのために、シャーシー内部にアクセスするには、
システムの電源はすべてのソースから切断され、電源コードは電源モジュールから取り外す必要があります。

警告

在你打开机箱并安装或移除内部器件前,必须将系统完全断电,并移除电源线。

警告

在您打開機殼安裝或移除內部元件前，必須將系統完全斷電，並移除電源線。

Warnung

Das System muss von allen Quellen der Energie und vom Netzanschlusskabel getrennt sein, das von den Spg.Versorgungsteilmodulen entfernt wird, bevor es auf den Chassisinnenraum zurückgreift, um Systemsbestandteile anzubringen oder zu entfernen.

¡Advertencia!

El sistema debe ser disconnected de todas las fuentes de energía y del cable eléctrico quitado de los módulos de fuente de alimentación antes de tener acceso el interior del chasis para instalar o para quitar componentes de sistema.

Attention

Le système doit être débranché de toutes les sources de puissance ainsi que de son cordon d'alimentation secteur avant d'accéder à l'intérieur du chassis pour installer ou enlever des composants de systéme.

אזהרה !

יש לנתק את המערכת מכל מקורות החשמל ויש להסיר את כבל החשמלי מהספק לפני גישה לחלק הפנימי של המארז לצורך התקנת או הסרת רכיבים.

يجب فصل النظام من جميع مصادر الطاقة وإزالة سلك الكهرباء من وحدة امداد الطاقة قبل
الوصول إلى المناطق الداخلية للهيكل لتثبيت أو إزالة مكونات الجهاز

경고!

시스템에 부품들을 장착하거나 제거하기 위해서는 섀시 내부에 접근하기 전에 반드시 전원 공급장치로부터 연결되어있는 모든 전원과 전기코드를 분리해주어야 합니다.

Waarschuwing

Voordat u toegang neemt tot het binnenwerk van de behuizing voor het installeren of verwijderen van systeem onderdelen, dient u alle spanningsbronnen en alle stroomkabels aangesloten op de voeding(en) van de behuizing te verwijderen

Equipment Installation

Warning!

Only trained and qualified personnel should be allowed to install, replace, or service this equipment.

機器の設置

トレーニングを受け認定された人だけがこの装置の設置、交換、またはサービスを許可されています。

警告

只有经过培训且具有资格的人员才能进行此设备的安装、更换和维修。

警告

只有經過受訓且具資格人員才可安裝、更換與維修此設備。

Warnung

Das Installieren, Ersetzen oder Bedienen dieser Ausrüstung sollte nur geschultem, qualifiziertem Personal gestattet werden.

¡Advertencia!

Solamente el personal calificado debe instalar, reemplazar o utilizar este equipo.

Attention

Il est vivement recommandé de confier l'installation, le remplacement et la maintenance de ces équipements à des personnels qualifiés et expérimentés.

אזהרה !

צוות מוסמך בלבד רשאי להתקין, להחליף את הציוד או לתת שירות עבור הציוד.

يجب أن يسمح فقط للموظفين المؤهلين والمدربين لتركيب واستبدال أو خدمة هذا الجهاز

경고!

훈련을 받고 공인된 기술자만이 이 장비의 설치, 교체 또는 서비스를 수행할 수 있습니다.

Waarschuwing

Deze apparatuur mag alleen worden geïnstalleerd, vervangen of hersteld door geschoold en gekwalificeerd personeel.

Restricted Area

Warning!

This unit is intended for installation in restricted access areas. A restricted access area can be accessed only through the use of a special tool, lock and key, or other means of security. (This warning does not apply to workstations).

アクセス制限区域

このユニットは、アクセス制限区域に設置されることを想定しています。

アクセス制限区域は、特別なツール、鍵と錠前、その他のセキュリティの手段を用いてのみ出入りが可能です。

警告

此部件应安装在限制进出的场所，限制进出的场所指只能通过使用特殊工具、锁和钥匙或其它安全手段进出的场所。

警告

此裝置僅限安裝於進出管制區域，進出管制區域係指僅能以特殊工具、鎖頭及鑰匙或其他安全方式才能進入的區域。

Warnung

Diese Einheit ist zur Installation in Bereichen mit beschränktem Zutritt vorgesehen. Der Zutritt zu derartigen Bereichen ist nur mit einem Spezialwerkzeug, Schloss und Schlüssel oder einer sonstigen Sicherheitsvorkehrung möglich.

¡Advertencia!

Esta unidad ha sido diseñada para instalación en áreas de acceso restringido. Sólo puede obtenerse acceso a una de estas áreas mediante la utilización de una herramienta especial, cerradura con llave u otro medio de seguridad.

Attention

Cet appareil doit être installée dans des zones d'accès réservés. L'accès à une zone d'accès réservé n'est possible qu'en utilisant un outil spécial, un mécanisme de verrouillage et une clé, ou tout autre moyen de sécurité.

אזור עם גישה מוגבלת

אזהרה !
יש להתקין את היחידה באזורים שיש בהם הגבלת גישה. הגישה ניתנת בעזרת כלי אבטחה בלבד (מפתח, מנעול וכד׳).

تم تخصيص هذه الوحدة لتركيبها في مناطق محظورة .
يمكن الوصول إلى منطقة محظورة فقط من خلال استخدام أداة خاصة،
قفل ومفتاح أو أي وسيلة أخرى للالأمان

경고!

이 장치는 접근이 제한된 구역에 설치하도록 되어있습니다. 특수도구, 잠금 장치 및 키, 또는 기타 보안 수단을 통해서만 접근 제한 구역에 들어갈 수 있습니다.

Waarschuwing

Dit apparaat is bedoeld voor installatie in gebieden met een beperkte toegang. Toegang tot dergelijke gebieden kunnen alleen verkregen worden door gebruik te maken van speciaal gereedschap, slot en sleutel of andere veiligheidsmaatregelen.

Battery Handling

Warning!

There is the danger of explosion if the battery is replaced incorrectly. Replace the battery only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions

電池の取り扱い

電池交換が正しく行われなかった場合、破裂の危険性があります。交換する電池はメーカーが推奨する型、または同等のものを使用下さい。使用済電池は製造元の指示に従って処分して下さい。

警告
电池更换不当会有爆炸危险。请只使用同类电池或制造商推荐的功能相当的电池更换原有电池。请按制造商的说明处理废旧电池。

警告
電池更換不當會有爆炸危險。請使用製造商建議之相同或功能相當的電池更換原有電池。請按照製造商的說明指示處理廢棄舊電池。

Warnung

Bei Einsetzen einer falschen Batterie besteht Explosionsgefahr. Ersetzen Sie die Batterie nur durch den gleichen oder vom Hersteller empfohlenen Batterietyp. Entsorgen Sie die benutzten Batterien nach den Anweisungen des Herstellers.

Attention

Danger d'explosion si la pile n'est pas remplacée correctement. Ne la remplacer que par une pile de type semblable ou équivalent, recommandée par le fabricant. Jeter les piles usagées conformément aux instructions du fabricant.

¡Advertencia!

Existe peligro de explosión si la batería se reemplaza de manera incorrecta. Reemplazar la batería exclusivamente con el mismo tipo o el equivalente recomendado por el fabricante. Desechar las baterías gastadas según las instrucciones del fabricante.

אזהרה !
קיימת סכנת פיצוץ של הסוללה במידה והוחלפה בדרך לא תקינה. יש להחליף את הסוללה בסוג התואם מחברת יצרן מומלצת.

סילוק הסוללות המשומשות יש לבצע לפי הוראות היצרן.

هناك خطر من انفجار في حالة استبدال البطارية بطريقة غير صحيحة فعليك استبدال البطارية
فقط بنفس النوع أو ما يعادلها كما أوصت به الشركة المصنعة
تخلص من البطاريات المستعملة وفقا لتعليمات الشركة الصانعة

경고!

배터리가 올바르게 교체되지 않으면 폭발의 위험이 있습니다. 기존 배터리와 동일하거나 제조사에서 권장하는 동등한 종류의 배터리로만 교체해야 합니다. 제조사의 안내에 따라 사용된 배터리를 처리하여 주십시오.

Waarschuwing

Er is ontploffingsgevaar indien de batterij verkeerd vervangen wordt. Vervang de batterij slechts met hetzelfde of een equivalent type die door de fabrikant aanbevolen wordt. Gebruikte batterijen dienen overeenkomstig fabrieksvoorschriften afgevoerd te worden.

Redundant Power Supplies

Warning!

This unit might have more than one power supply connection. All connections must be removed to de-energize the unit.

冗長電源装置
このユニットは複数の電源装置が接続されている場合があります。
ユニットの電源を切るためには、すべての接続を取り外さなければなりません。

警告
此部件连接的电源可能不止一个，必须将所有电源断开才能停止给该部件供电。

警告
此裝置連接的電源可能不只一個，必須切斷所有電源才能停止對該裝置的供電。

Warnung

Dieses Gerät kann mehr als eine Stromzufuhr haben. Um sicherzustellen, dass der Einheit kein trom zugeführt wird, müssen alle Verbindungen entfernt werden.

¡Advertencia!

Puede que esta unidad tenga más de una conexión para fuentes de alimentación. Para cortar por completo el suministro de energía, deben desconectarse todas las conexiones.

Attention

Cette unité peut avoir plus d'une connexion d'alimentation. Pour supprimer toute tension et tout courant électrique de l'unité, toutes les connexions d'alimentation doivent être débranchées.

אם קיים יותר מספק אחד

אזהרה !
ליחדה יש יותר מחיבור אחד של ספק. יש להסיר את כל החיבורים על מנת לרוקן את היחידה.

قد يكون لهذا الجهاز عدة اتصالات بوحدات امداد الطاقة.
يجب إزالة كافة الاتصالات لعزل الوحدة عن الكهرباء

경고!

이 장치에는 한 개 이상의 전원 공급 단자가 연결되어 있을 수 있습니다. 이 장치에 전원을 차단하기 위해서는 모든 연결 단자를 제거해야만 합니다.

Waarschuwing

Deze eenheid kan meer dan één stroomtoevoeraansluiting bevatten. Alle aansluitingen dienen verwijderd te worden om het apparaat stroomloos te maken.

Backplane Voltage

Warning!

Hazardous voltage or energy is present on the backplane when the system is operating. Use caution when servicing.

バックプレーンの電圧
システムの稼働中は危険な電圧または電力が、バックプレーン上にかかっています。
修理する際には注意ください。

警告
当系统正在进行时，背板上有很危险的电压或能量，进行维修时务必小心。

警告
當系統正在進行時，背板上有危險的電壓或能量，進行維修時務必小心。

Warnung

Wenn das System in Betrieb ist, treten auf der Rückwandplatine gefährliche Spannungen oder Energien auf. Vorsicht bei der Wartung.

¡Advertencia!

Cuando el sistema está en funcionamiento, el voltaje del plano trasero es peligroso. Tenga cuidado cuando lo revise.

Attention

Lorsque le système est en fonctionnement, des tensions électriques circulent sur le fond de panier. Prendre des précautions lors de la maintenance.

מתח בפנל האחורי

אזהרה !
קיימת סכנת מתח בפנל האחורי בזמן תפעול המערכת. יש להיזהר במהלך העבודה.

هناك خطر من التيار الكهربائي أوالطاقة الموجودة على اللوحة
عندما يكون النظام يعمل كن حذرا عند خدمة هذا الجهاز

경고!

시스템이 동작 중일 때 후면판 (Backplane)에는 위험한 전압이나 에너지가 발생합니다. 서비스 작업 시 주의하십시오.

Waarschuwing

Een gevaarlijke spanning of energie is aanwezig op de backplane wanneer het systeem in gebruik is. Voorzichtigheid is geboden tijdens het onderhoud.

Comply with Local and National Electrical Codes

Warning!

Installation of the equipment must comply with local and national electrical codes.

地方および国の電気規格に準拠
機器の取り付けはその地方および国の電気規格に準拠する必要があります。

警告

设备安装必须符合本地与本国电气法规。

警告

設備安裝必須符合本地與本國電氣法規。

Warnung

Die Installation der Geräte muss den Sicherheitsstandards entsprechen.

¡Advertencia!

La instalacion del equipo debe cumplir con las normas de electricidad locales y nacionales.

Attention

L'équipement doit être installé conformément aux normes électriques nationales et locales.

תיאום חוקי החשמל הארצי

אזהרה !
התקנת הציוד חייבת להיות תואמת לחוקי החשמל המקומיים והארציים.

تركيب المعدات الكهربائية يجب أن يمتثل للقوانين المحلية والوطنية المتعلقة بالكهرباء

경고!

현 지역 및 국가의 전기 규정에 따라 장비를 설치해야 합니다.

Waarschuwing

Bij installatie van de apparatuur moet worden voldaan aan de lokale en nationale elektriciteitsvoorschriften.

Product Disposal

Warning!

Ultimate disposal of this product should be handled according to all national laws and regulations.

製品の廃棄

この製品を廃棄処分する場合、国の関係する全ての法律・条例に従い処理する必要があります。

警告
本产品的废弃处理应根据所有国家的法律和规章进行。

警告
本產品的廢棄處理應根據所有國家的法律和規章進行。

Warnung

Die Entsorgung dieses Produkts sollte gemäß allen Bestimmungen und Gesetzen des Landes erfolgen.

¡Advertencia!

Al deshacerse por completo de este producto debe seguir todas las leyes y reglamentos nacionales.

Attention

La mise au rebut ou le recyclage de ce produit sont généralement soumis à des lois et/ou directives de respect de l'environnement. Renseignez-vous auprès de l'organisme compétent.

סילוק המוצר

אזהרה !
סילוק סופי של מוצר זה חייב להיות בהתאם להנחיות וחוקי המדינה.

عند التخلص النهائي من هذا المنتج ينبغي التعامل معه وفقا لجميع القوانين واللوائح الوطنية

경고!

이 제품은 해당 국가의 관련 법규 및 규정에 따라 폐기되어야 합니다.

Waarschuwing

De uiteindelijke verwijdering van dit product dient te geschieden in overeenstemming met alle nationale wetten en reglementen.

Hot Swap Fan Warning

Warning!

The fans might still be turning when you remove the fan assembly from the chassis. Keep fingers, screwdrivers, and other objects away from the openings in the fan assembly's housing.

ファン・ホットスワップの警告

シャーシから冷却ファン装置を取り外した際、ファンがまだ回転している可能性があります。ファンの開口部に、指、ドライバー、およびその他のものを近づけないで下さい。

警告
当您从机架移除风扇装置，风扇可能仍在转动。小心不要将手指、螺丝起子和其他物品太靠近风扇

警告
當您從機架移除風扇裝置，風扇可能仍在轉動。小心不要將手指、螺絲起子和其他物品太靠近風扇。

Warnung

Die Lüfter drehen sich u. U. noch, wenn die Lüfterbaugruppe aus dem Chassis genommen wird. Halten Sie Finger, Schraubendreher und andere Gegenstände von den Öffnungen des Lüftergehäuses entfernt.

¡Advertencia!

Los ventiladores podran dar vuelta cuando usted quite ell montaje del ventilador del chasis. Mandtenga los dedos, los destornilladores y todos los objetos lejos de las aberturas del ventilador

Attention

Il est possible que les ventilateurs soient toujours en rotation lorsque vous retirerez le bloc ventilateur du châssis. Prenez garde à ce que doigts, tournevis et autres objets soient éloignés du logement du bloc ventilateur.

אזהרה !
כאשר מסירים את חלקי המאוורר מהמארז, יתכן והמאוררים עדיין עובדים. יש להרחיק למרחק בטוח את האצבעות וכלי עבודה שונים מהפתחים בתוך המאוורר

من الممكن أن المراوح لا تزال تدور عند إزالة كتلة المروحة من الهيكل يجب إبقاء الأصابع ومفكات البراغي
وغيرها من الأشياء بعيدا عن الفتحات في كتلة المروحة.

경고!

섀시로부터 팬 조립품을 제거할 때 팬은 여전히 회전하고 있을 수 있습니다. 팬 조림품 외관의 열려있는 부분들로부터 손가락 및 스크류드라이버, 다른 물체들이 가까이 하지 않도록 배치해 주십시오.

Waarschuwing

Het is mogelijk dat de ventilator nog draait tijdens het verwijderen van het ventilatorsamenstel uit het chassis. Houd uw vingers, schroevendraaiers en eventuele andere voorwerpen uit de buurt van de openingen in de ventilatorbehuizing.

Power Cable and AC Adapter

Warning!

When installing the product, use the provided or designated connection cables, power cables and AC adaptors. Using any other cables and adaptors could cause a malfunction or a fire. Electrical Appliance and Material Safety Law prohibits the use of UL or CSA -certified cables (that have UL/CSA shown on the code) for any other electrical devices than products designated by Supermicro only.

電源コードとACアダプター

製品を設置する場合、提供または指定された接続ケーブル、電源コードとACアダプターを使用下さい。他のケーブルやアダプタを使用すると故障や火災の原因になることがあります。電気用品安全法は、ULまたはCSA認定のケーブル(UL/CSEマークがコードに表記)を Supermicroが指定する製品以外に使用することを禁止しています。

警告

安装此产品时,请使用本身提供的或指定的连接线,电源线和电源适配器.使用其它线材或适配器可能会引起故障或火灾。除了Supermicro所指定的产品,电气用品和材料安全法律规定禁止使用未经UL或CSA认证的线材。(线材上会显示UL/CSA符号)。

警告

安裝此產品時,請使用本身提供的或指定的連接線,電源線和電源適配器.使用其它線材或適配器可能會引起故障或火災。除了Supermicro所指定的產品,電氣用品和材料安全法律規定禁止使用未經UL或CSA認證的線材。(線材上會顯示UL/CSA符號)。

Warnung

Bei der Installation des Produkts, die zur Verfügung gestellten oder benannt Anschlusskabel, Stromkabel und Netzteile. Verwendung anderer Kabel und Adapter kann zu einer Fehlfunktion oder ein Brand entstehen. Elektrische Geräte und Material Safety Law verbietet die Verwendung von UL-oder CSA-zertifizierte Kabel, UL oder CSA auf der Code für alle anderen elektrischen Geräte als Produkte von Supermicro nur bezeichnet gezeigt haben.

¡Advertencia!

Al instalar el producto, utilice los cables de conexión previstos o designados, los cables y adaptadores de CA. La utilización de otros cables y adaptadores podría ocasionar un mal funcionamiento o un incendio. Aparatos Eléctricos y la Ley de Seguridad del Material prohíbe el uso de UL o CSA cables certificados que tienen UL o CSA se muestra en el código de otros dispositivos eléctricos que los productos designados por Supermicro solamente.

Attention

Lors de l'installation du produit, utilisez les bables de connection fournis ou désigné. L'utilisation d'autres cables et adaptateurs peut provoquer un dysfonctionnement ou un incendie. Appareils électroménagers et de loi sur la sécurité Matériel interdit l'utilisation de UL ou CSA câbles certifiés qui ont UL ou CSA indiqué sur le code pour tous les autres appareils électriques que les produits désignés par Supermicro seulement.

חשמליים ומתאמי AC

אזהרה !

כאשר מתקינים את המוצר, יש להשתמש בכבלים, ספקים ומתאמים AC אשר נועדו וסופקו לשם כך. שימוש בכל כבל או מתאם אחר יכול לגרום לתקלה או קצר חשמלי. על פי חוקי שימוש במכשירי חשמל וחוקי בטיחות, קיים איסור להשתמש בכבלים המוסמכים ב- UL או ב- CSA (כשאר מופיע עליהם קוד של UL/CSA) עבור כל מוצר חשמלי אחר שלא צוין על ידי סופרמיקרו בלבד.

عند تركيب الجهاز يجب استخدام كابلات التوصيل،والكابلات الكهربائية ومحولات التيار المتردد
التي . أن استخدام أي كابلات ومحولات أخرى يتسبب في حدوث عطل أو حريق.
تم توفيرها لك مع المنتج
الأجهزة الكهربائية ومواد قانون السلامة يحظر استخدام الكابلات CSA أو UL معتمدة من قبل
لأي أجهزة كهربائية أخرى غير المنتجات المعينة من قبل Supermicro
(التي تحمل علامة UL/CSA)

경고!

제품을 설치할 때에는 제공되거나 지정된 연결케이블과 전원케이블, AC어댑터를 사용해야 합니다. 그 밖의 다른 케이블들이나 어댑터들은 고장 또는 화재의 원인이 될 수 있습니다. 전기용품안전법 (Electrical Appliance and Material Safety Law)은 슈퍼마이크로에서 지정한 제품들 외에는 그 밖의 다른 전기 장치들을 위한 UL또는 CSA에서 인증한 케이블(전선 위에 UL/CSA가 표시)들의 사용을 금지합니다.

Waarschuwing

Bij het installeren van het product, gebruik de meegeleverde of aangewezen kabels, stroomkabels en adapters. Het gebruik van andere kabels en adapters kan leiden tot een storing of een brand. Elektrisch apparaat en veiligheidsinformatiebladen wet verbiedt het gebruik van UL of CSA gecertificeerde kabels die UL of CSA die op de code voor andere elektrische apparaten dan de producten die door Supermicro alleen.

Notes

Chapter 3

Chassis Components

3-1 Overview

This chapter describes the most common components included with your chassis. Some components listed may not be included or compatible with your particular chassis model. For more information, see the installation instructions detailed later in this manual.

3-2 Components

Chassis

For the latest shipping lists, visit our Web site at: http://www.supermicro.com.

This chassis accepts four hot-swappable system cooling fans and two power supplies. SC747 models come in dark gray.

Backplane

Each SC747 chassis comes with a 4U backplane. The backplane will support both SAS and SATA. For more information regarding compatible backplanes, view the appendices found at the end of this manual. In addition, visit our Web site for the latest information: http://www.supermicro.com.

Fans

The SC747 chassis accepts four system fans and two rear exhaust fans. SC747BTQ-R1K628B models can support up to two optional external rear fans. System fans are powered from the serverboard. These fans are powered by 4-pin connectors.

Mounting Rails (optional)

The SC747 can be placed in a rack for secure storage and use. To set up your rack, follow the step-by-step instructions included in this manual.

Power Supply

SC747 chassis model includes (93%+) Gold Level 1400W redundant (1+1) power supplies rated at 1400 Watts or redundant 94% Platinum Level power supplies rated at 1620 Watts. In the unlikely event your power supply fails, replacement is simple and can be done without tools.

3-3 Where to get Replacement Components

Infrequently, you may need replacement parts for your system. To ensure the highest level of professional service and technical support, we strongly recommend purchasing exclusively from our Supermicro Authorized Distributors/System Integrators/Resellers. A list of Supermicro Authorized Distributors/System Integrators/Reseller can be found at: http://www.supermicro.com. Click the Where to Buy link.

Chapter 4

System Interface

4-1 Overview

There are several LEDs on the control panel as well as others on the drive carriers to keep you constantly informed of the overall status of the system as well as the activity and health of specific components. SC747 models have two buttons on the chassis control panel, a power on/off button and a reset button. This chapter explains the meanings of all LED indicators and the appropriate response you may need to take.

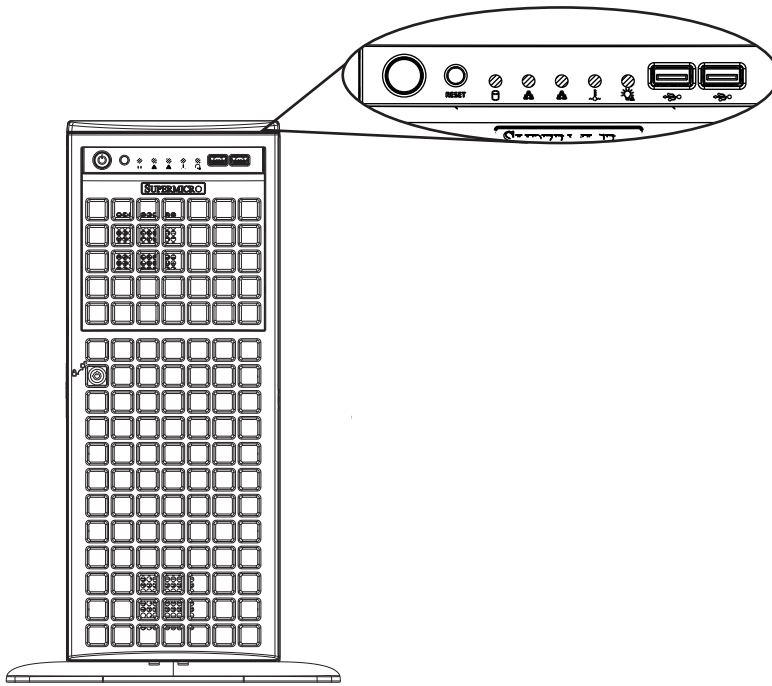


Figure 4-1: Front LEDs

4-2 Control Panel Buttons

There are two push-buttons located on the front of the chassis, a power on/off button and a reset button.

- **Power:** The main power switch is used to apply or remove power from the power supply to the server system. Turning off the power with this button removes the main power but keeps standby power supplied to the system. Therefore, you must unplug system before servicing.

- **Reset:** The reset button is used to reboot the system.

4-3 Control Panel LEDs

The control panel located on the front of the SC747chassis has five LEDs. These LEDs provide you with critical information related to different parts of the system. This section explains what each LED indicates when illuminated and any corrective action you may need to take.

- **HDD:** Indicates SAS/SATA drive, and/or DVD-ROM drive activity when flashing.

- **NIC1:** Indicates network activity on GLAN1 when flashing.

- **NIC2:** Indicates network activity on GLAN2 when flashing.

- **Overheat/Fan Fail:** When this LED flashes it indicates a fan failure. When continuously on (not flashing) it indicates an overheat condition, which may be caused by cables obstructing the airflow in the system or the ambient room temperature being too warm. Check the routing of the cables and make sure all fans are present and operating normally. You should also check to make sure that the chassis covers are installed. Finally, verify that the heatsinks are installed properly. This LED will remain flashing or on as long as the overheat condition exists.

- **Power Fail:** Indicates a power failure to the system's power supply units.

4-4 Drive Carrier LEDs

Your chassis uses SAS/SATA drives.

SAS/SATA Drives

Each SAS/SATA drive carrier has two LEDs.

- Green: Each Serial ATA drive carrier has a green LED. When illuminated, this green LED (on the front of the SATA drive carrier) indicates drive activity. A connection to the SATA backplane enables this LED to blink on and off when that particular drive is being accessed.
- Red: The red LED indicates a SAS/SATA drive failure. If one of the SAS/SATA drives fail, you should be notified by your system management software.

Chapter 5

Chassis Setup and Maintenance

5-1 Overview

This chapter covers the steps required to install components and perform maintenance on the chassis. The only tool you will need to install components and perform maintenance is a Phillips screwdriver. Print this page to use as a reference while setting up your chassis.

5-2 Installation and Maintenance

Installation Procedures:
Chassis Covers
Removing the Main Cover
Opening the Front Cover
Configuring the Storage Module
Installing Hard Drives
Installing the Motherboard
IO Shield Installation
Permanent and Optional Standoffs
Installing the Heatsink
Power Supply Connections
Configuring the Expansion Slots
Installing Double-Width Graphics Cards

General Maintenance:
General Maintenance: Systems Fans
General Maintenance: Power Supply

Warning: Except for short periods of time, do NOT operate the server without the cover in place. The chassis cover must be in place to allow proper airflow and prevent overheating.

Review the warnings and precautions listed in the manual before setting up or servicing this chassis. These include information in Chapter 2: System Safety and the warning/precautions listed in the setup instructions.

5-3 Chassis Covers

The SC747 chassis has three covers, the main cover, the top cover and the front cover. This section of the manual is describes removing the main cover, and opening the front cover. Removing the top cover is described in Chapter 6, in the section titled Installing a Chassis onto a Rack.

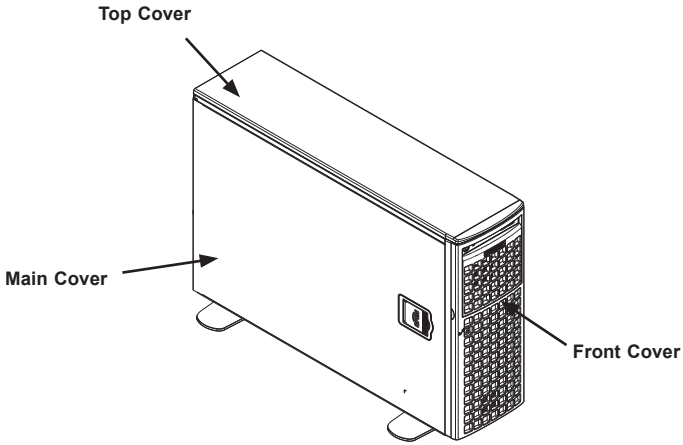


Figure 5-1: Identifying the Chassis Covers

Removing the Main Cover

Removing the Chassis Main Cover

1. Power down the system and remove the power cords from the rear of the power supplies.

2. Lift up and back on the main cover handle, which secures the cover to the chassis.

3. Lift the main cover off of the chassis.

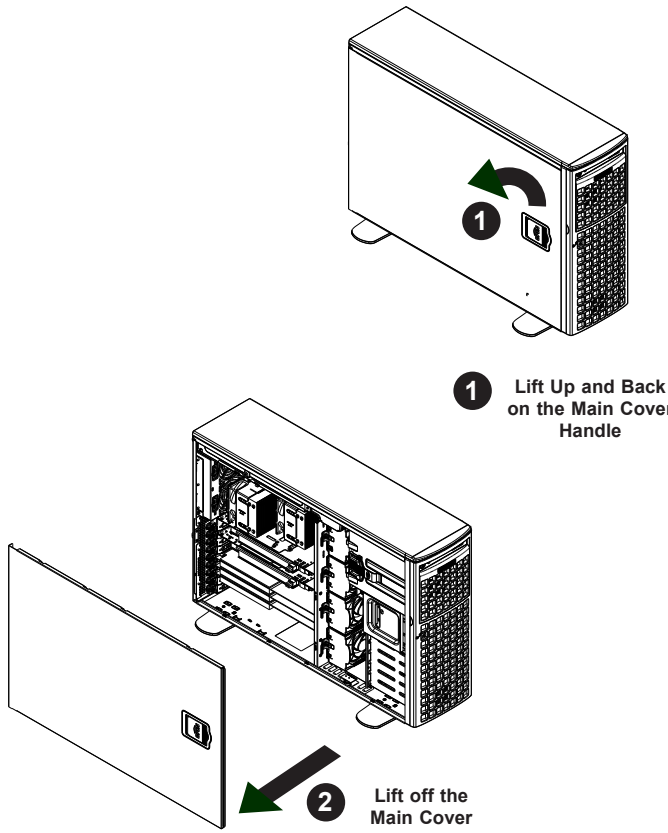


Figure 5-2: Removing the Main Cover

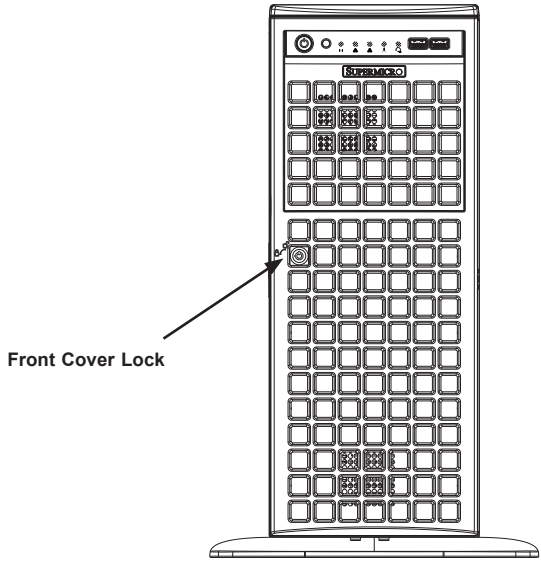


Figure 5-3: Opening the Front Cover

Opening the Front Cover

The front cover houses up to eight hot-swappable hard drives. The cover can be locked to prevent unauthorized access. The key to this lock is shipped with the system.

Opening the Front Cover

1. Unlock the front cover using the key shipped with the system.

2. Gently pull the cover open.

5-4 Configuring the the Storage Module

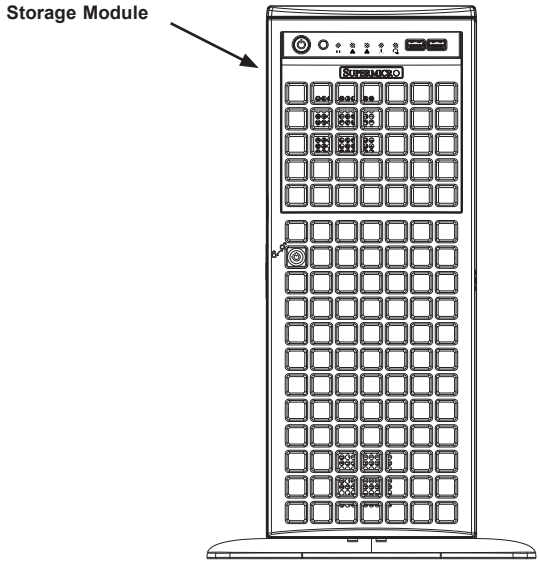


Figure 5-4: Chassis in Tower Mode

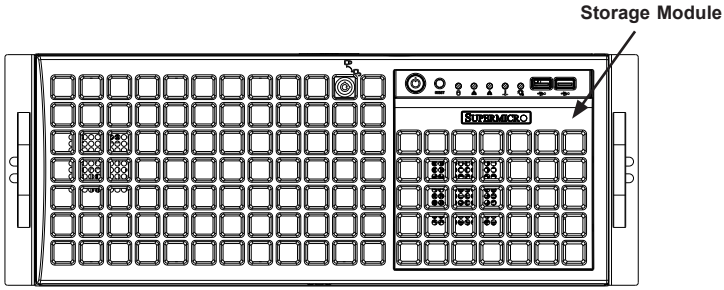


Figure 5-5: Chassis in Rack Mount Mode

Tower or Rack Configuration

The SC747 chassis is shipped in tower mode and can be immediately used as desktop server. If the chassis is to be used in a rack, the storage module must be rotated 90 degrees and the storage moudule cover must be replaced with a horizontal module cover, part number MCP-210-74703-0B. This can be done before, during, or after setup. It is not necessary to replace the storage module cover when the chassis is in the tower configuration.

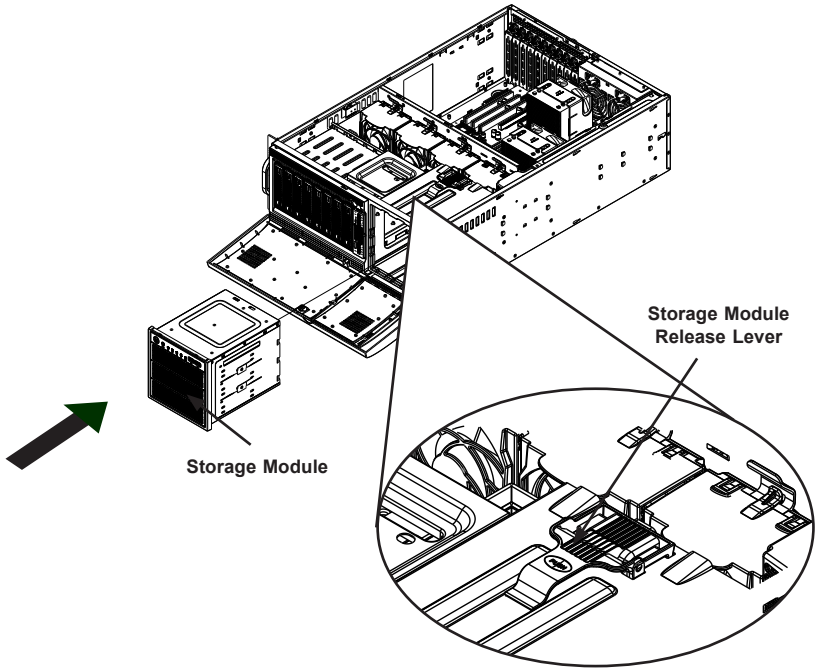


Figure 5-6: Remove the Storage Module

Rotating the Storage Module for Rack Mounting

1. Power down the system, remove the power cords from the rear of the power supplies and open the chassis cover.

2. Locate the storage module and disconnect any cables from the storage module to any component in the chassis.

3. Push the storage module release lever. This lever unlocks the storage module.

4. Grasp the external edges of the storage module and pull the unit from the chassis.

5. Turn the storage module 90 degrees as illustrated.

6. Reinsert the module into the chassis and reconnect the cables.

7. Reconnect the power cords and power up the system.

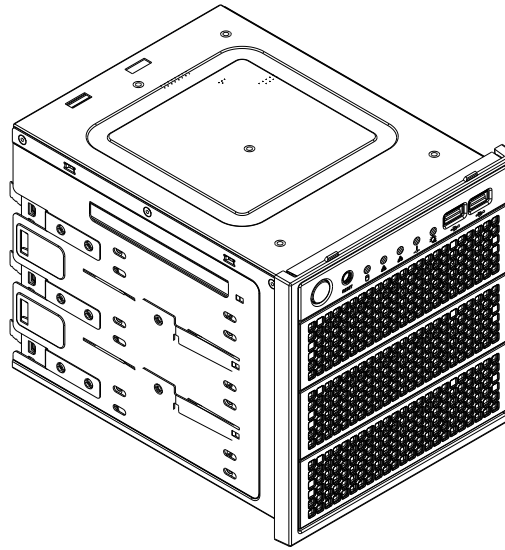


Figure 5-7: Chassis Storage Module

Installing Drives in the Storage Module

The storage module includes three full-sized drive bays and the front LED panel. This module can be configured in one of three ways:

1. Add up to three peripheral drives (CD-ROM, DVD-ROM, DVD-RW etc.).
2. Add up to three extra hard drives to the drive trays.
3. Add five hot-swappable hard drives to the storage module. This configuration requires a mobile rack. More information on mobile rack installation can be found in the appendices at the end of this manual.

Warning! Enterprise level hard disk drives are recommended for use in Supermicro chassis and servers. For information on recommended HDDs, visit the Supermicro Web site at http://www.supermicro.com/products/nfo/files/storage/SAS-1-ComplList-110909.pdf

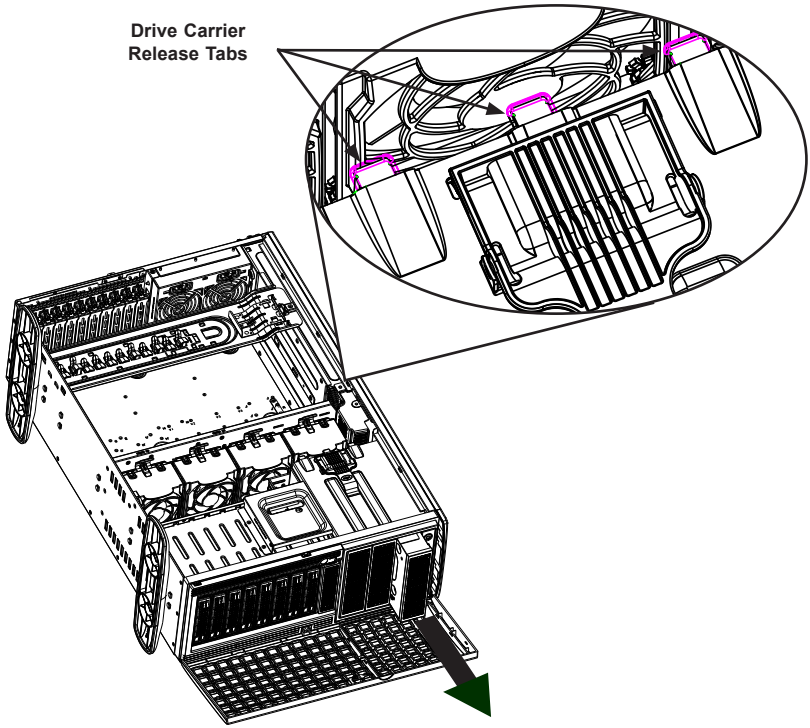


Figure 5-8: Removing a Drive Carrier

Use the following instructions to add up to three peripheral drives (DVD-ROM, CD-ROM, etc.) to the drive trays:

Adding Peripheral Drives

1. Power down the system, remove the power cords from the back of the power supplies and open the chassis cover.

2. Locate the drive carrier release tab for the slot where you want to place the peripheral drive.

3. Press the release tab and push the drive carrier toward the front of the chassis.

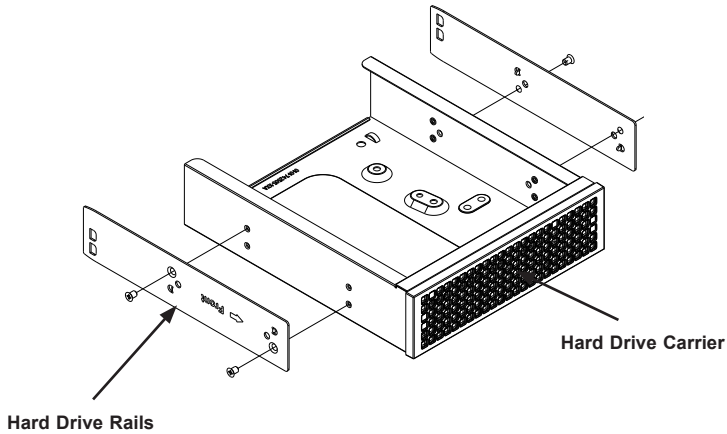


Figure 5-9: Adding Hard Drive Rails to the DVD-ROM Drive

4. Remove the drive carrier rails from the drive carrier. To do this, you must remove two screws from each side.

5. Attach the rails to a DVD-ROM, DVD-RW or other peripheral. The rails should fit any standard sized 5.25" peripherals.

6. Slide the peripheral drive into the chassis until the carrier clicks into place.

7. Repeat these steps for each periperal drive.

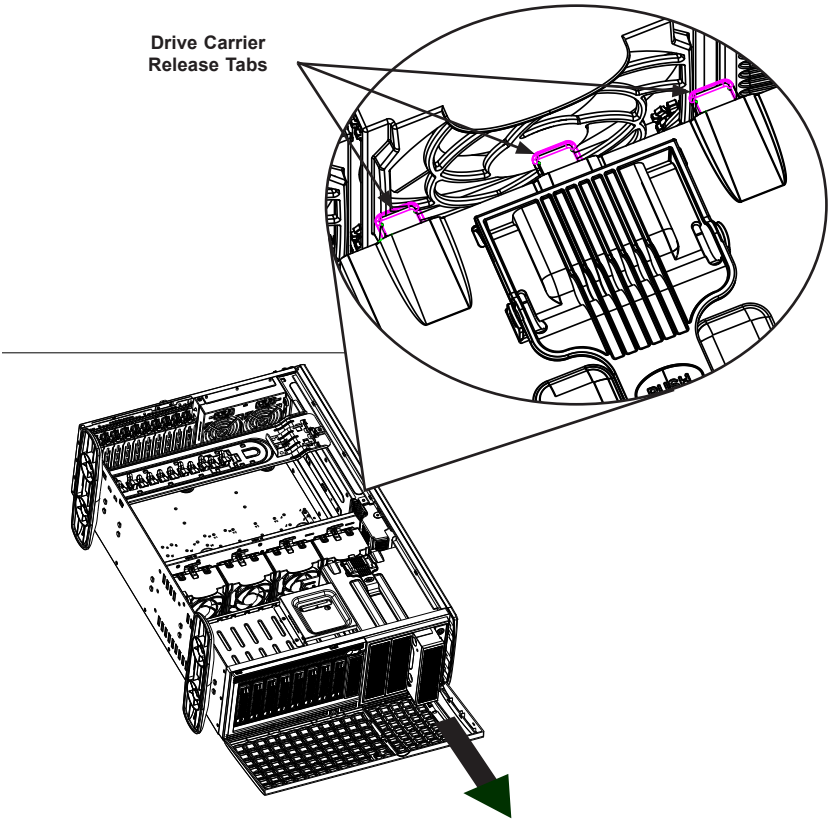


Figure 5-10: Removing a Drive Carrier

Adding Hard Drives to the Drive Carriers

1. Power down the server, unplug the power cords from the rear of the power supplies and open the chassis cover.

2. Locate the drive carrier release tab for the slot where you want to place the hard drive.

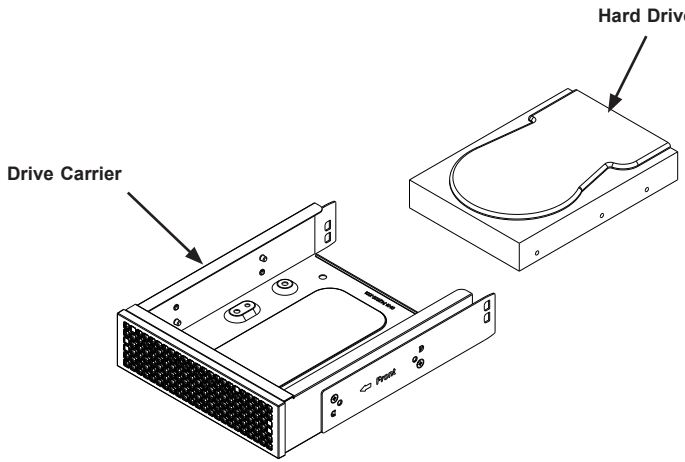


Figure 5-11: Adding a Hard Drive to the Drive Carrier

3. Push the drive carrier toward the front of the chassis.
4. Place the hard drive into the drive carrier. Make sure The hard drive can be SAS or SATA depending on your motherboard.
5. Secure the hard drive to the carrier with four screws from the bottom.
6. Slide the drive carrier into the chassis until the carrier clicks into place.
7. Repeat these steps for each drive carrier.

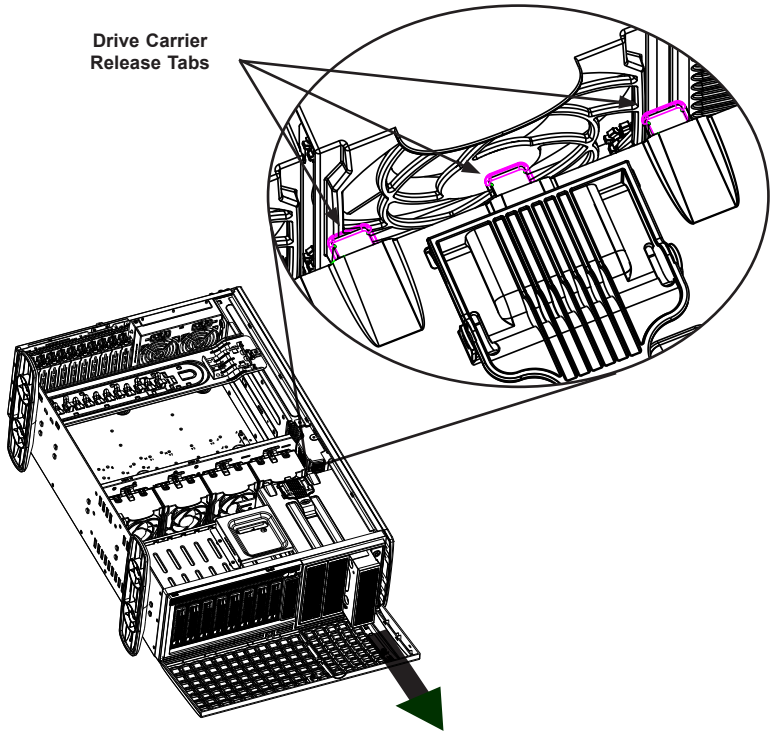


Figure 5-12: Removing a Drive Carrier

Adding Five Hard Drives Using a Supermicro Mobile Rack

The SC747 chassis supports a CSE-M35T-1/CSE-M35TQ mobile rack to install extra hot-swappable hard drives. The mobile rack goes into the storage module which goes into the chassis.

For more information on mobile rack installation and use, visit the Supermicro Web site at www.supermicro.com.

Adding Hard Drives to a Supermicro Mobile Rack

1. Power down the system, disconnect the power cords from the rear of the power supplies, and open the chassis cover.

2. Locate the drive release tabs.

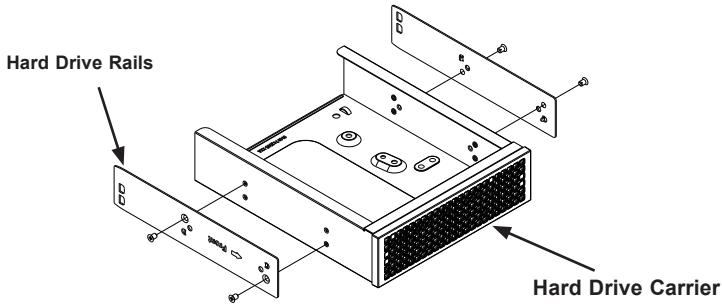


Figure 5-13: Removing the Hard Drive Rails

3. Pull the first drive release tab and push the drive carrier toward the front of the chassis. Repeat this for all three tabs.

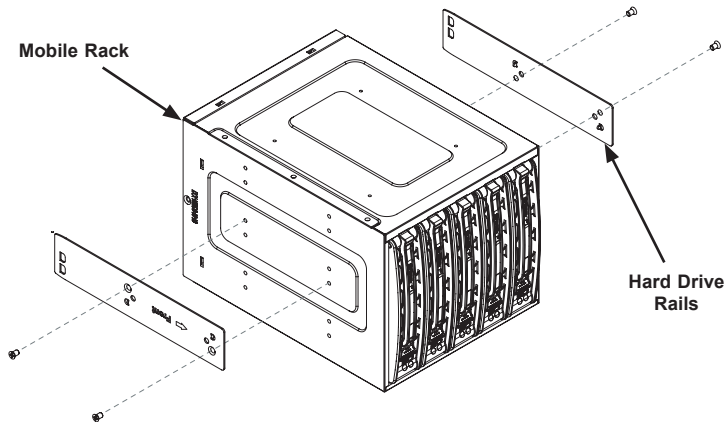


Figure 5-14: Adding Hard Drive Rails to a Storage Rack

4. Remove the hard drive carrier rails from the hard drive tray. To do this, you must remove two screws from each side. Do this for all three hard drive carriers.

5. Install two hard drive rails to the mobile rack. Each individual rail requires two screws. Also, make sure the arrow on the rail points toward the front of the chassis.

6. Slide the mobile rack into the storage module and chassis.

5-5 Installing Hard Drives

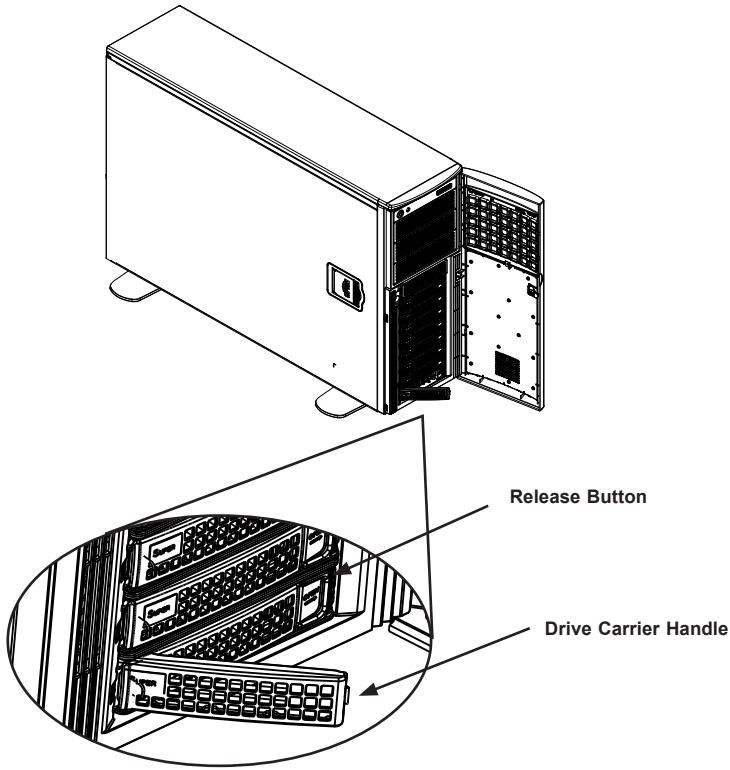


Figure 5-15: Installing Hard Drives

Installing Hard Drives into the Chassis

The drives are mounted in drive carriers to simplify their installation and removal from the chassis. These carriers also help promote proper airflow for the drive bays. Only enterprise level hard drives are recommended for use in Supermicro chassis.

Installing Hard Drives

1. Unlock and open the chassis cover.

2. Press the release button to extend the drive carrier handle.

3. Using the handle, pull the drive carrier out of the drive bay. The drive is hot-swappable; there are no cables to disconnect.

4. Remove the screws holding the dummy drive to the drive carrier.

5. Place a hard drive in the drive carrier.

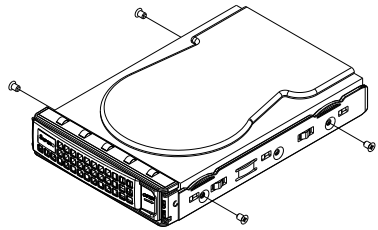


Figure 5-16: Installing a Hard Drive

6. Secure the hard drive to the carrier using four screws.

7. Insert the hard drive into the chassis. To do this:

7a. Press the hard drive release button to extend the drive carrier handle.

7b. Insert the hard drive into the drive bay and close the handle to lock the hard drive into place.

5-6 Installing the Motherboard

I/O Slot Shield Installation

The I/O shield holds the motherboard ports in place. Install the I/O shield before installing the motherboard.

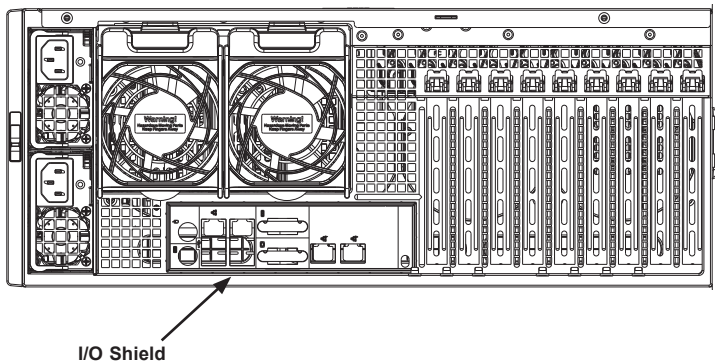


Figure 5-17: SC747 Chassis I/O Shield

Installing the I/O Shield

1. Review the documentation that came with your motherboard. Become familiar with component placement, requirements, and precautions.

2. Power down the system, unplug the power cords from the power supplies and open the chassis cover.

3. Choose the proper I/O shield for the motherboard you are installing. The I/O shield should be included in the motherboard packaging.

4. With the illustrations facing the outside of the chassis, place the shield into the space provided. Once installed, the chassis rear window will hold the I/O shield in place.

Permanent and Optional Standoffs

Standoffs prevent short circuits by creating space between the motherboard and the chassis surface. The SC747 chassis packaging includes optional standoffs (hexagon shaped posts). These standoffs accept the rounded Phillips head screws included in the SC747 accessories packaging.

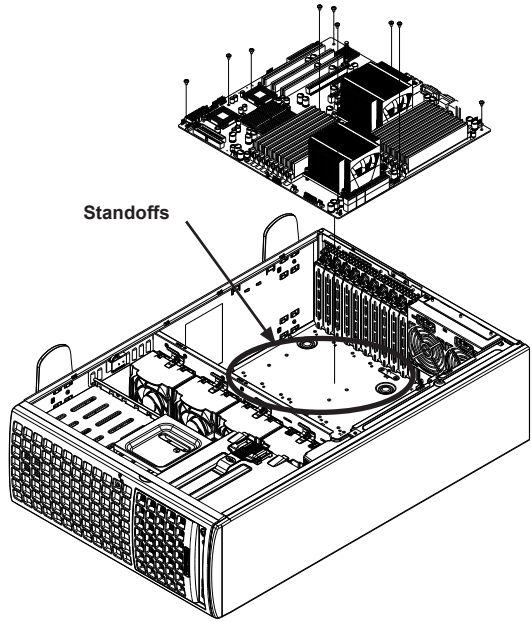


Figure 5-18: Chassis Standoffs

Installing the Motherboard

Installing the Motherboard into the Chassis

1. Review the documentation that came with your motherboard. Become familiar with component placement, requirements, and precautions.

2. Power down the system, disconnect the power cords from the power supplies, lay the chassis on a flat surface and open the chassis cover.

3. Compare the holes in the motherboard to those in the chassis, then add or remove standoffs as needed. To do this:
   A. Place a hexagonal standoff screw through the bottom the chassis.
   B. Secure the screw with the hexagon nut (rounded side down).

4. Lay the motherboard on the chassis aligning the permanent and optional standoffs.

5. Secure the motherboard to the chassis using the rounded, Phillips head screws. Do not exceed more than eight pounds of torque per square inch when tightening down the motherboard.

6. Secure the CPU(s), heatsinks, and other components to the motherboard, chassis, and/or backplane as needed.

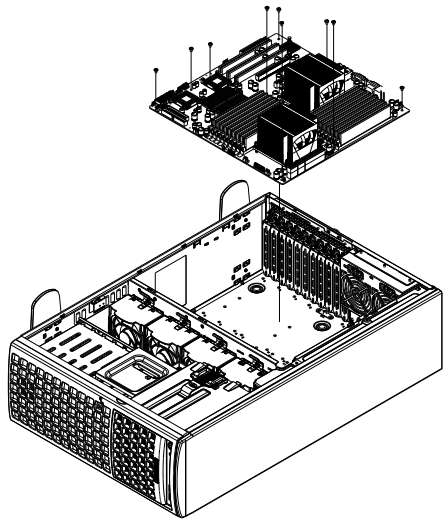


Figure 5-19: Installing the Motherboard

Installing the Active Heatsink

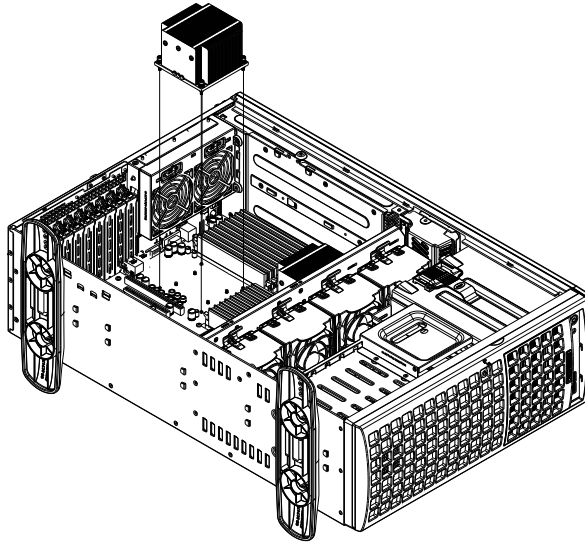


Figure 5-20: Installing the Active Heatsink

Installation of the active heatsink will vary, depending upon the type of motherboard used in the chassis. See the information which was supplied with the motherboard for details on how to properly install the active heatsink on your specific motherboard.

Power Supply Connections

Connect each of the following cables, as required, by your motherboard manufacturer. In some instances, some cables may not need to be connected. Some cables may not be available with your model.

Power Supply Cable			
Name	**Qty**	**Connects to:**	**Description**
20-pin or 24-pin power cable	1	Mother-board	20-pin or 24-pin power cable provides electricity to the motherboard. and has twenty to twenty-four yellow, black, gray, red, orange, green and blue wires.
Hard drive power cable	2	Backplane	Connect HDD power connectors to the HDD backplane for hot-swappable HDD support.
8-pin mother-board cable	1	Mother-board	Provides power to the motherboard CPU. This cable has two black and two yellow wires.
4-pin mother-board cable	1	Mother-board	Provides power to PCI expansion card. This cable has two black and two yellow wires.
5-pin SMBus power cable (small)	1	Mother-board	Allows the SM (System Management) bus to monitor power supply
2-pin INT cable	1	Mother-board	Intrusion detection cable allows the system to log when the server chassis has been opened.

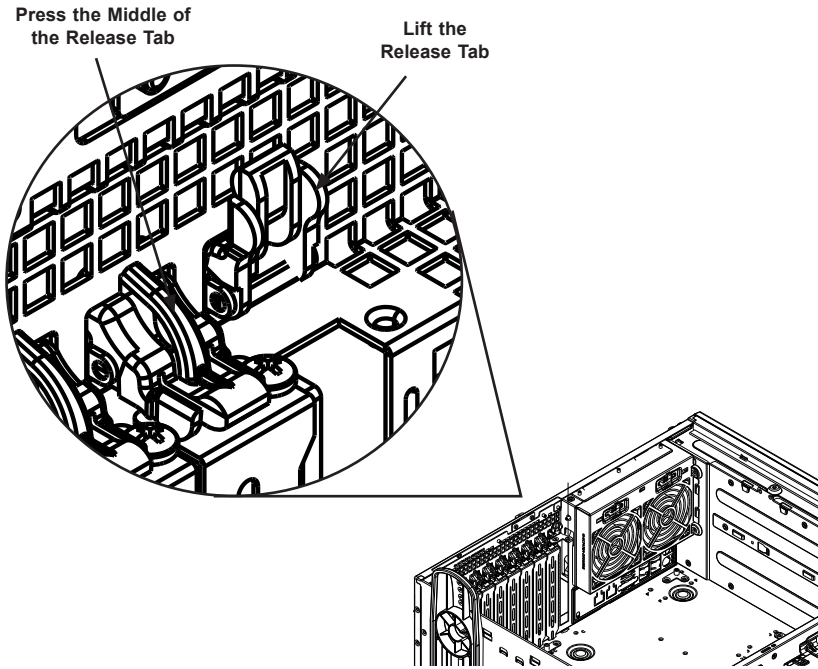


Figure 5-21: Expansion Card Port

Configuring the Expansion Slots

After the motherboard installation, install expansion cards in the chassis.

Installing Expansion Cards

1. Power down the system, unplug the power cords from the power supplies and open the chassis cover.

2. Locate the release tab on the top of the PCI slot bracket.

3. Gently apply pressure in the middle of the release tab to unlock the PCI slot bracket.

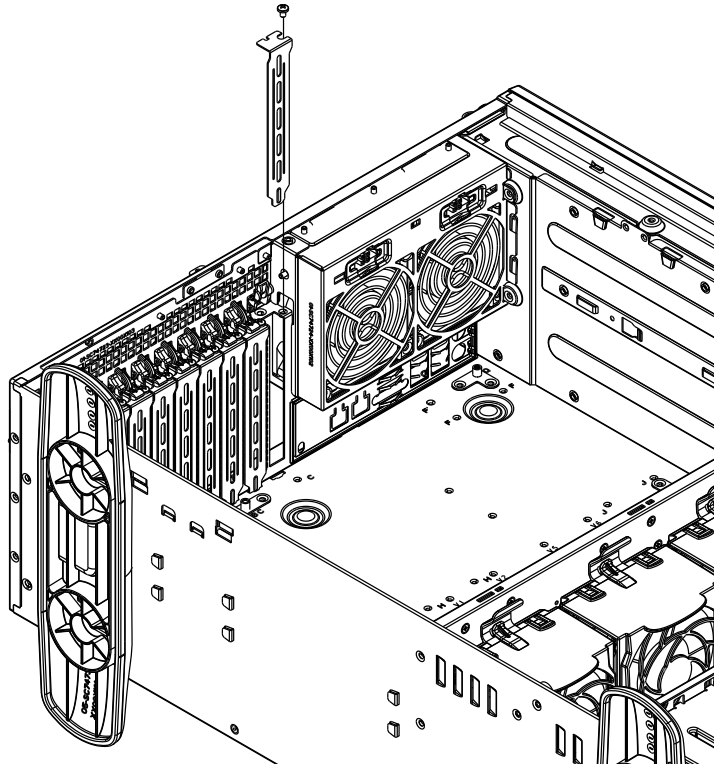


Figure 5-22: Removing the PCI Card Slot Guard

4. Pull the release tab upward.

5. Remove the screw holding the bracket in place and pull the bracket from the chassis.

6. Install your expansion card into the PCI slot bracket and motherboard. To do this, slide the expansion card (with "L" bracket) into the PCI slot and secure the card to the motherboard.

7. Push the PCI bracket release tab down until it locks into place with an audible "click".

8. Secure the expansion card with the screw previously removed from the chassis.

9. Repeat this process with each expansion card to be installed into the chassis.

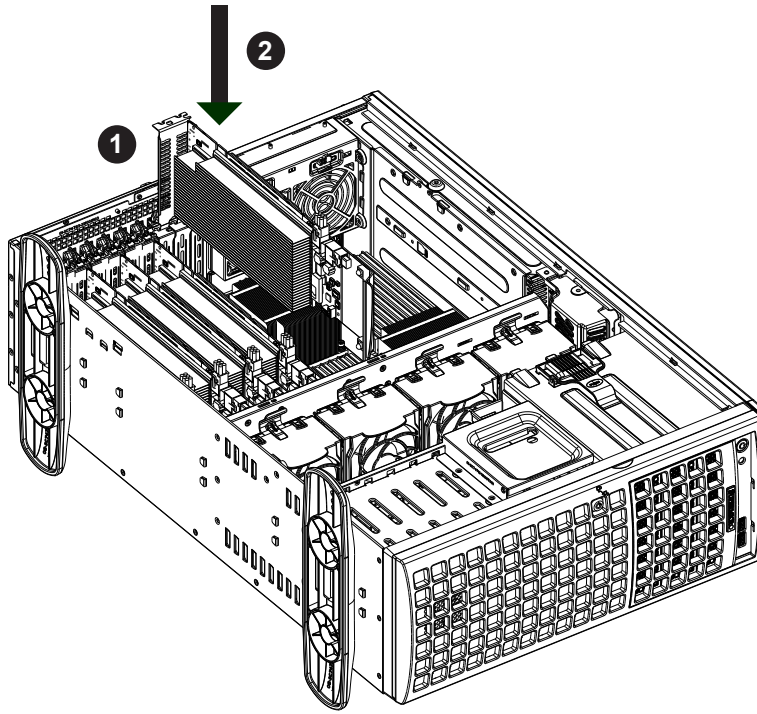


Figure 5-23: Installing Graphics Cards

Installing Double-Width Graphics Cards

The SC747 chassis is designed to support up to four double-width, high-end graphics cards. An eleven slot GPU card holder (MCP-290-74702-0N) is recommended for this application and may be purchased by visiting the Supermicro Web site at http://www.supermicro.com and clicking on the Where to Buy link.

Installing Double-Width Graphics Cards

1. Follow the instructions in the previous section for opening the PCI slot, and insert the graphics card into the appropriate PCI slot.

2. Slide the graphics card down onto the motherboard.

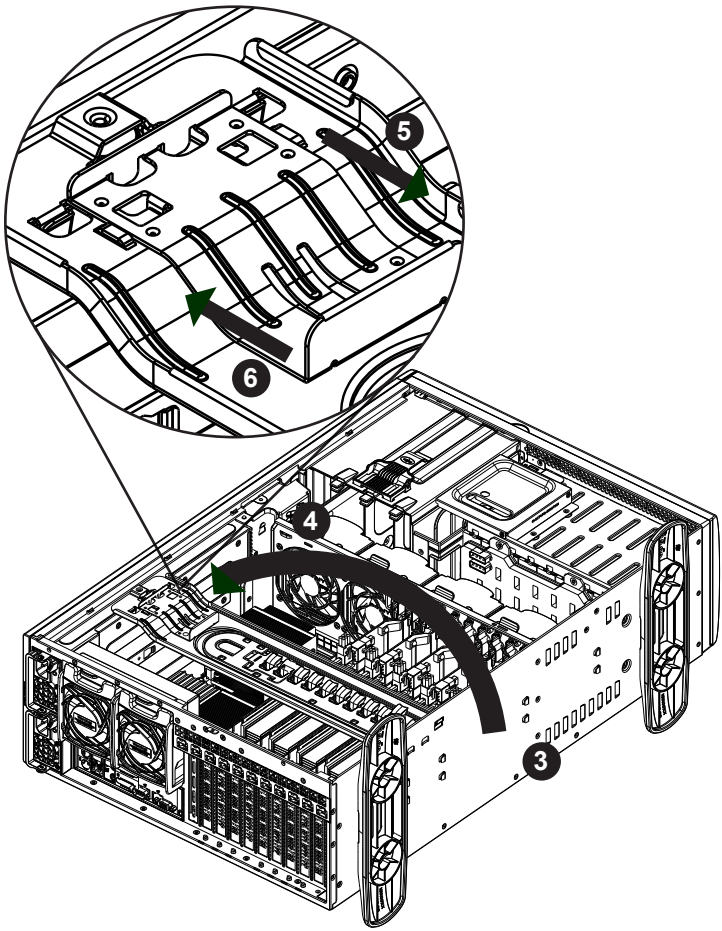


Figure 5-24: Closing the Graphics Card Holder

3. Place the tabs of the MCP-290-74702-0N graphics card holder into the slots on the wall of the chassis as illustrated.

4. Lower the graphics card holder down onto the card

5. Pull back the slide lock and lower it over the raised tab as illustrated.

6. Push the slide lock forward, allowing the pins of the slide lock to penetrate the thru holes in the raised tab.

5-7 System Fans

Six heavy-duty fans provide cooling for the chassis. Four system fans are located in the mid-section of the chassis with two exhaust fans in the rear. These fans circulate air through the system as a means of lowering the system's internal temperature.

The fans come pre-installed to the chassis. Each fan is hot-swappable and can be replaced without removing any connections.

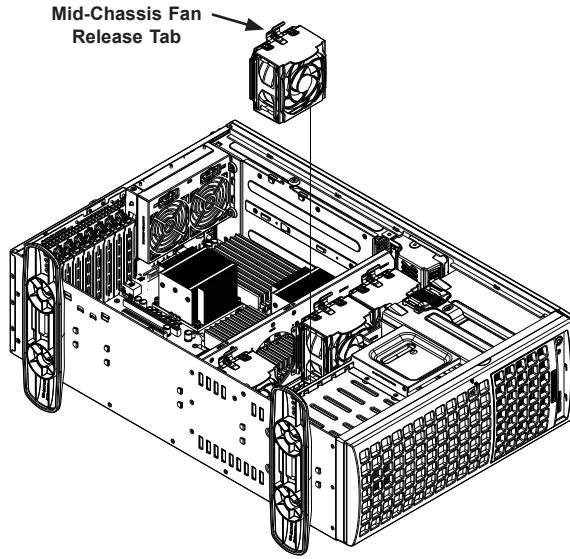


Figure 5-25: Mid-Chassis Fans

Replacing Mid-Chassis System Fans

Replacing Mid-Chassis Fans

1. Determine which fan has failed. Because the fans are hot-swappable, the system does not need to be powered-down.

2. Press the fan release tab and lift the failed fan from the chassis. Mid-chassis fans must be pulled straight out of the chassis.

3. Place the new fan into the vacant space in the housing while making sure the arrows on the top of the fan (indicating air direction) point in the same direction as the arrows on the other fans. As soon as the fan is connected, it will begin working.

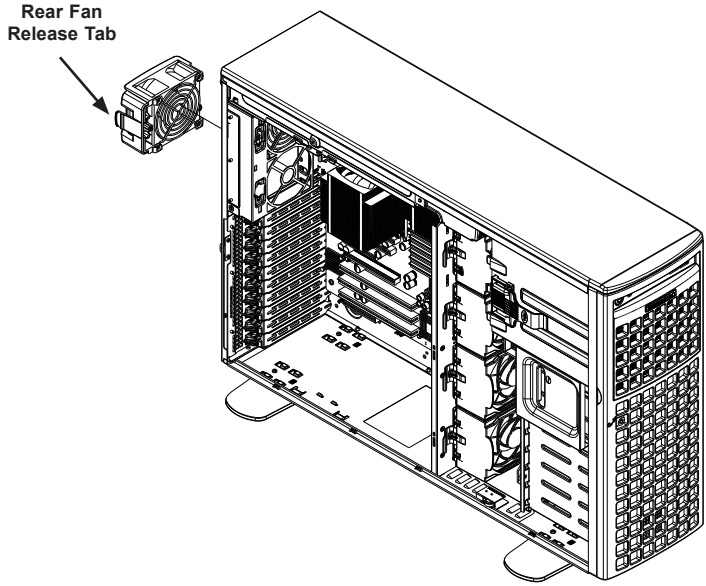


Figure 5-26: Rear Exhaust Fans

Replacing Rear Exhaust Fans

Replacing the Rear Exhaust Fan

1. Determine which fan is not operational.
2. Press the rear fan release tab.
3. Pull the fan away from the chassis by pulling back the top first.
4. Place the new fan in the chassis, inserting the bottom of the fan first.
5. Push the fan fully into the housing until the fan clicks into place.

Adding Optional External Rear Fans (BTQ Model Only)

SC747BTQ chassis models support up to two optional external rear fans for additional cooling. These are mounted over the PCI slots in the rear of the chassis. These optional fans may be ordered separately (MCP-320-00046-0N-KIT).

Adding Optional External Rear Fans

1. Power down the system, disconnect the power cords from the rear of the power supplie and open the chassis cover.

2. Remove the PCI slot covers as illustrated in figure 5-22.

3. Remove the plastic PCI slot latch from the rear of the chassis-
   3A: Orient the external PCI slot bracket so that the wiring is at the top of the bracket.
   3B: Determine which PCI slot latch aligns with the slot in the top of the external rear fan bracket.
   3C: Open the latch by pressing downward on the latch as illustrated below.
   3D:With the latch open, press inward against one side of the latch to release its hinge pin from the hinge mounting hole in chassis.
   3E: Gently move the hinge latch from side to side until it slips out of both hinge mounting holes and remove it from the chassis.

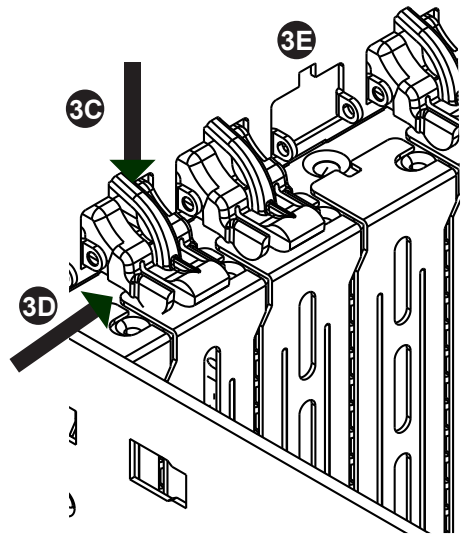


Figure 5-27: PCI Slot Modification

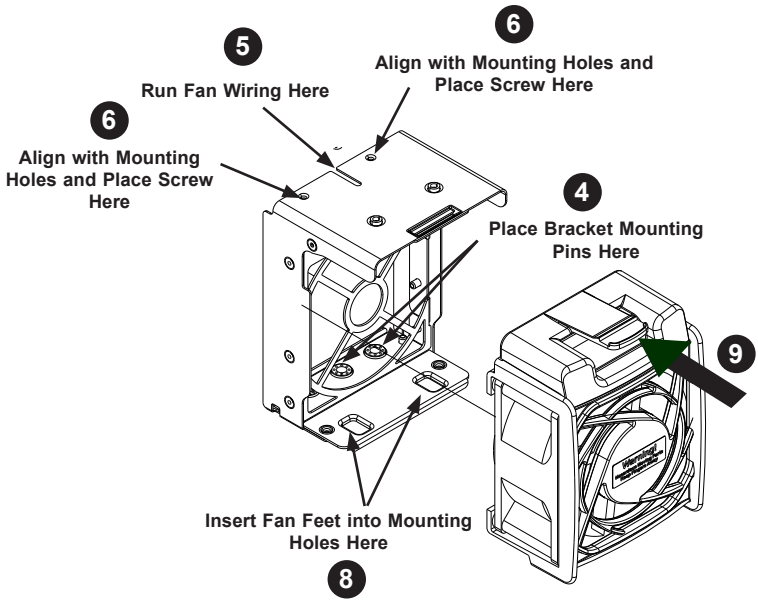


Figure 5-28: External Rear Fan Bracket Mounting Pin Placement

4. Place two of the loose, metal bracket mounting pins into the holes at the base of the PCI slots in the position where the fan is to be located in the rear window. Tighten these pins to the rear window using pliers.

5. Slide the fan wiring into the slot at the top of the external rear fan bracket.

6. Place the external rear fan bracket over the mounting pins placed at the base of the PCI slots, located in the rear window.

7. Align the holes at the top of the external rear fan bracket with the corresponding holes at the top of the PCI slot and secure the bracket with two Phillips head screws.

8. Insert the feet on the bottom of the external rear fan into the corresponding slots on the bottom of the external rear fan bracket.

9. Push the top of the fan into the bracket until it clicks into the locked position.

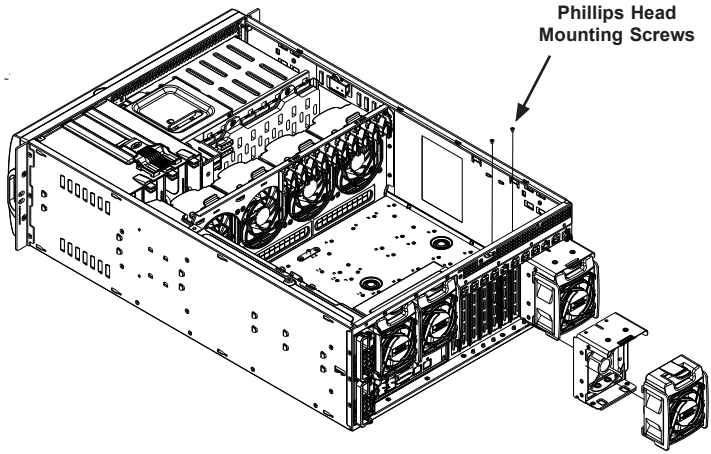


Figure 5-29: Placing the External Rear Fan and Bracket on the Chassis

10. Route the wiring through the open latch slot and into the chassis.

11. For cosmetic purposes the plastic latch clip may be reinstalled in the latch slot if desired. Additionally, the wiring may be routed along the top of the PCI slots and concealed by closing the latch of each slot over the wiring.

12. Plug the fan power connector at the end of the fan wiring into the motherboard.

13. Close the chassis, reconnect the power cord and power up the server.

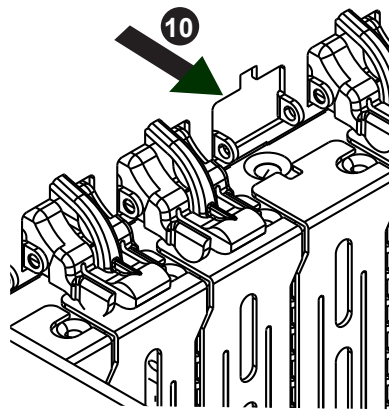


Figure 5-30: Routing the Fan Wiring Into the Chassis

5-8 Power Supply

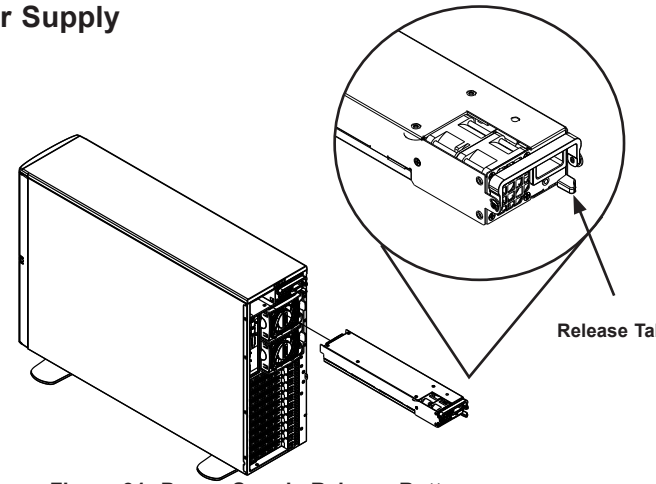


Figure 31: Power Supply Release Button

The SC747 chassis is equipped with 1400W or 1620W (redundant) power supplies. The power supply is auto-switching capable. This enables it to automatically sense and operate at a 100V to 240V input voltage. An amber light will be illuminated on the power supply when the power is off. An illuminated green light indicates that the power supply is operating.

Replacing the Power Supply

With a redundant power supply, the system automatically switches to the second power supply if the first should fail.

Replacing the Power Supply

1. Power down the system and unplug the power cord from the rear of the failed power supply. When the system includes a redundant power supply (two power modules), you can leave the server running and remove only one power supply.
2. Push the release tab on the back of the power supply as illustrated.
3. Pull the power supply out using the handle provided.
4. Replace the failed power module with another of the same model.
5. Push the new power supply module into the power bay until you hear a click.
6. Plug the AC power cord back into the module and power up the system.

Chapter 6

Rack Installation

6-1 Overview

This chapter provides instuctions for installing your system into a rack environment. Following the instructions in the order given should enable you to install the system within a minimal amount of time.

6-2 Unpacking the System

You should inspect the box the chassis was shipped in and note if it was damaged in any way. If the chassis itself shows damage you should file a damage claim with the carrier who delivered it.

Decide on a suitable location for the rack unit that will hold your chassis. It should be situated in a clean, dust-free area that is well ventilated. Avoid areas where heat, electrical noise and electromagnetic fields are generated. You will also need it placed near a grounded power outlet. Be sure to read the Rack and Server Precautions in the next section.

6-3 Preparing for Setup

Optional rail sets MCP-290-00059-0B (26.5" - 36.4") and MCP-290-00058-0N (19" - 26.6") include two sets of rail assemblies, two rail mounting brackets and the mounting screws you will need to install the system into the rack. Please read this section in its entirety before you begin the installation procedure outlined in the sections that follow.

Choosing a Setup Location

- Leave enough clearance in front of the rack to enable you to open the front door completely (~25 inches).
- Leave approximately 30 inches of clearance in the back of the rack to allow for sufficient airflow and ease in servicing.
- This product is for installation only in a Restricted Access Location (dedicated equipment rooms, service closets and similar environments.).

Rack Precautions

- Ensure that the leveling jacks on the bottom of the rack are fully extended to the floor with the full weight of the rack resting on them.
- In single rack installation, stabilizers should be attached to the rack.
- In multiple rack installations, the racks should be coupled together.
- Always make sure the rack is stable before extending a component from the rack.
- You should extend only one component at a time - extending two or more simultaneously may cause the rack to become unstable.

General Server Precautions

- Review the electrical and general safety precautions that came with the components you are adding to your chassis.
- Determine the placement of each component in the rack *before* you install the rails.
- Install the heaviest server components on the bottom of the rack first, and then work up.
- Use a regulating uninterruptible power supply (UPS) to protect the server from power surges, voltage spikes and to keep your system operating in case of a power failure.
- Allow the hot plug hard drives and power supply modules to cool before touching them.
- Always keep the rack's front door and all panels and components on the servers closed when not servicing to maintain proper cooling.

Rack Mounting Considerations

Ambient Operating Temperature

If installed in a closed or multi-unit rack assembly, the ambient operating temperature of the rack environment may be greater than the ambient temperature of the room. Therefore, consideration should be given to installing the equipment in an

environment compatible with the manufacturer's maximum rated ambient temperature (TMRA).

Reduced Airflow

Equipment should be mounted into a rack so that the amount of airflow required for safe operation is not compromised.

Mechanical Loading

Equipment should be mounted into a rack so that a hazardous condition does not arise due to uneven mechanical loading.

Circuit Overloading

Consideration should be given to the connection of the equipment to the power supply circuitry and the effect that any possible overloading of circuits might have on overcurrent protection and power supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

Reliable Ground

A reliable ground must be maintained at all times. To ensure this, the rack itself should be grounded. Particular attention should be given to power supply connections other than the direct connections to the branch circuit (i.e. the use of power strips, etc.).

To prevent bodily injury when mounting or servicing this unit in a rack, you must take special precautions to ensure that the system remains stable. The following guidelines are provided to ensure your safety:

- This unit should be mounted at the bottom of the rack if it is the only unit in the rack.
- When mounting this unit in a partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.
- If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack.

6-4 Installing the Chassis onto a Rack

This section provides information on installing the SC747 chassis into a rack unit with the rails provided. There are a variety of rack units on the market, which may mean the assembly procedure will differ slightly. You should also refer to the installation instructions that came with the rack unit you are using.

NOTE: The outer rail is adjustable, MCP-290-00059-0B (26.5" ~ 36.4") and MCP-290-00058-0N (19" ~ 26.6").

Removing the Chassis Cover and Feet

The SC747 chassis is shipped with the chassis cover and feet pre-installed. Both the feet and cover must be removed for before installing the rails.

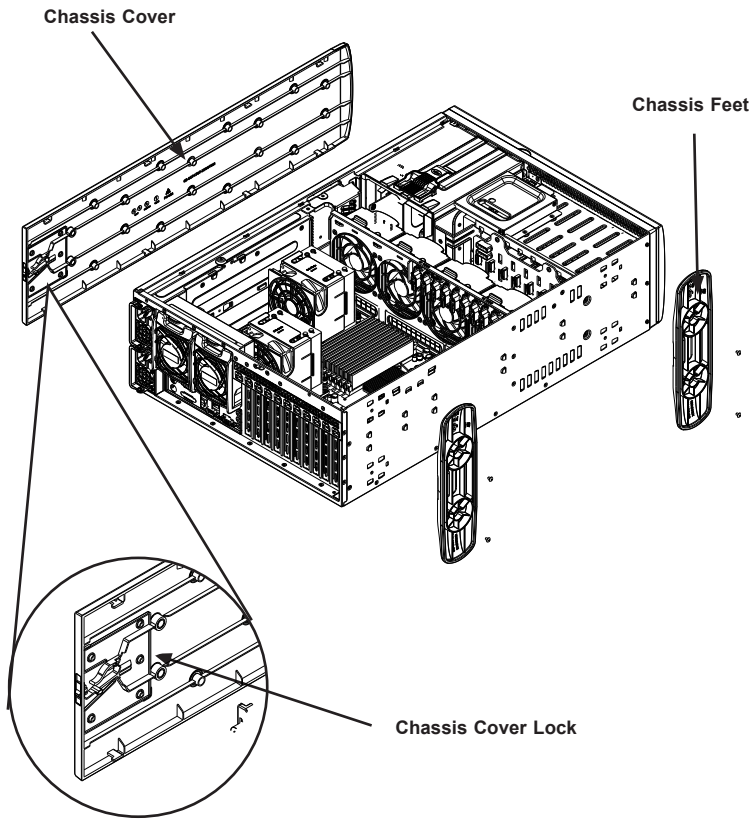


Figure 6-1: Removing the Feet and Chassis Top Cover

Removing the Chassis Top Cover

1. Locate the chassis cover lock (blue lever) at the rear of the chassis cover.
2. Slide the chassis cover lock to the right and push chassis cover forward.
3. Lift the chassis top cover off the chassis.

Removing the Chassis Feet

1. Place the chassis on its side with the chassis side cover facing upward.
2. Remove the screw holding the chassis foot in place.
3. The foot lock is a tab located in the center of the foot that prevents the foot from sliding. Using a flat head screwdriver, **gently** lift the foot lock upward and slide the foot toward the rear of the chassis.
4. Repeat steps 2 and 3 with each remaining foot.

Identifying the Sections of the Rack Rails

The chassis package includes two rack rail assemblies in the rack mounting kit. Each assembly consists of two sections: An inner fixed chassis rail that secures directly to the server chassis and an outer fixed rack rail that secures directly to the rack itself.

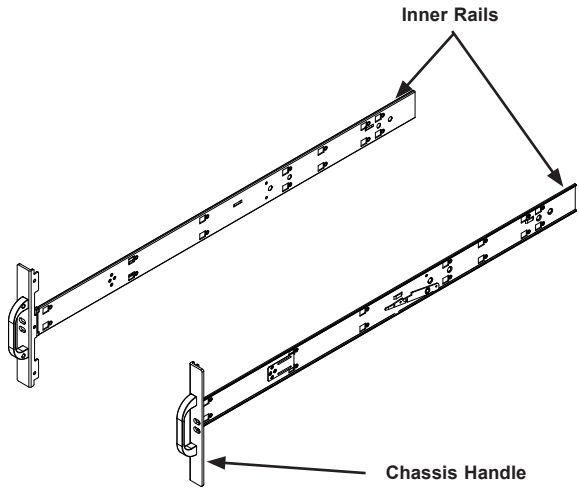


Figure 6-2: Identifying the Inner Rails and Chassis Handles

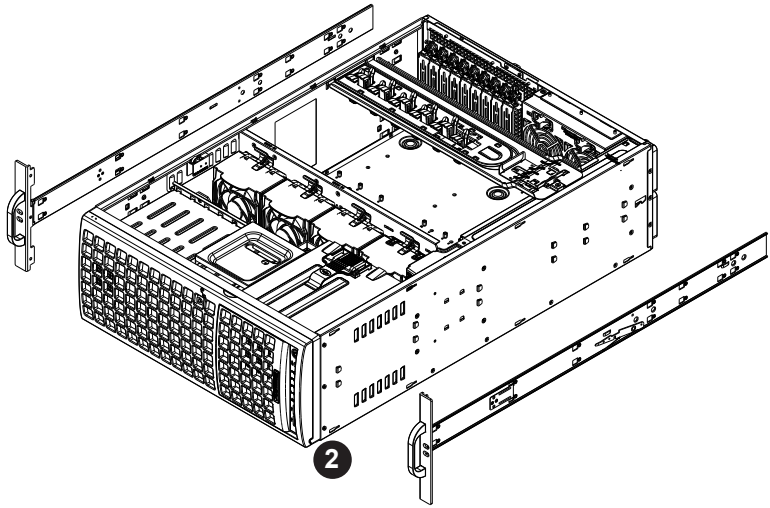


Figure 6-3: Installing the Inner Rack Rails

Installing the Chassis Handles and Inner Rails

Installing the Inner Rails

1. Locate the chassis handles and handle screws.
2. Align the chassis handle with the front of the chassis and secure with the three chassis handle screws.
3. Repeats steps 1 and 2 with the other handle.
4. Locate the inner rails and screws in the shipping package.
5. Align the inner rails against the chassis, as shown. Confirm that the rails are flushed against the edge of the chassis.
6. Tighten the screws. Do not over-tighten.
7. Repeat steps 5 and 6 with the other inner rail.

Warning: do not pick up the server with the front handles. They are designed to pull the system from a rack only.

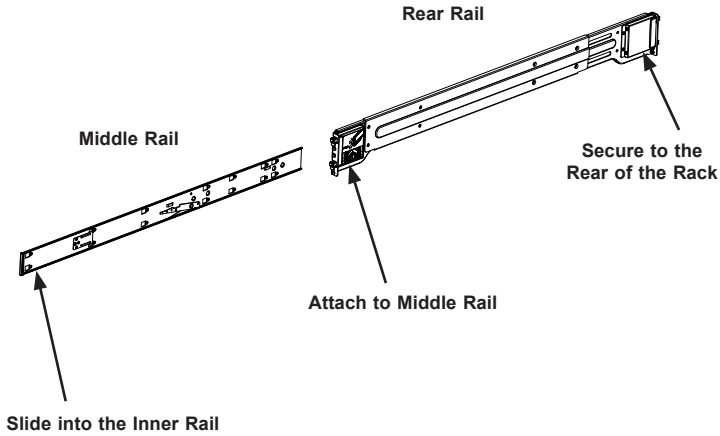


Figure 6-4: Assembling the Outer Rails

Installing the Outer Rails to the Rack

Installing the Outer Rails

1. Attach the rear rail to the middle rail.

2. Adjust both to the proper distance so that the rails fit snugly into the rack.

3. Secure the rear rail with two M5 screws to the rear of the rack.
   NOTE: The outer rail is adjustable MCP-290-00059-0B (26.5" - 36.4") and MCP-290-00058-0N (19" - 26.6").

4. Repeat steps 1-3 for the left outer rail.

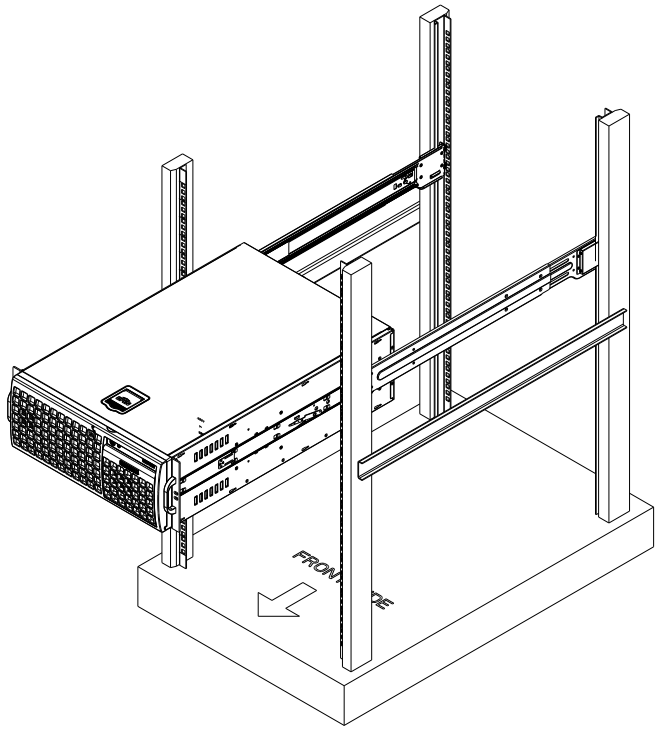


Figure 6-5: Installing the Rack Rails

Note: figures are for illustrative purposes only. Always install servers into racks from the bottom up.

Installing the Chassis into a Rack

Installing the Chassis

1. Confirm that chassis includes the inner rails and the outer rails.

2. Align the inner chassis rails with the front of the outer rack rails.

3. Slide the inner rails into the outer rails, keeping the pressure even on both sides (you may have to depress the locking tabs when inserting). When the chassis has been pushed completely into the rack, you should hear the locking tabs "click" into the locked position.

Stability hazard. The rack stabilizing mechanism must be in place, or the rack must be bolted to the floor before you slide the unit out for servicing. Failure to stabilize the rack can cause the rack to tip over.

6-5 Tower Mounting Instructions

The SC747 chassis is shipped with the chassis cover and feet pre-installed. To use the chassis as a desktop server, no other installation is required.

Use the instructions in this section if you have converted the chassis for rack use and need to return the chassis to tower mounting.

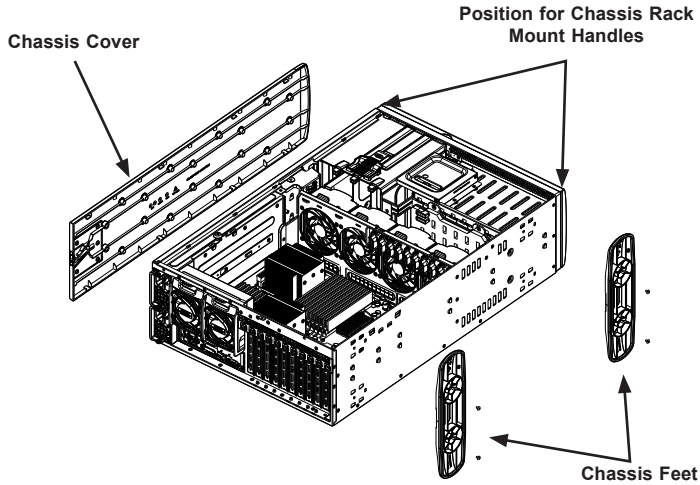


Figure 6-6: Adding Chassis Feet and Top Cover

Installing the Chassis Cover

Installing the Cover

1. Power down the system and remove the power cords from the rear of the power supplies.

2. Remove the rack mount front handles.

3. Align the cover post with the corresponding holes on the top of the chassis and place the cover on top of the chassis. The cover should overhang approximately one-half inch over the front of the chassis.

4. Slide the chassis cover toward the rear of the chassis to lock the cover into place.

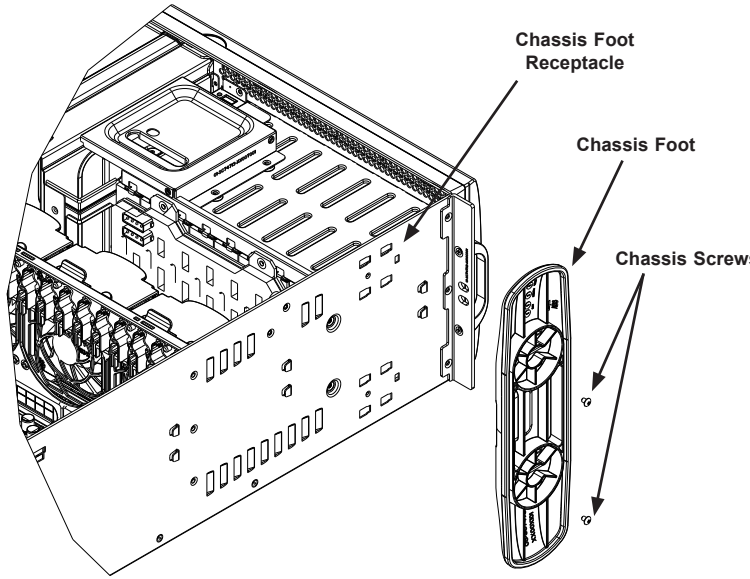


Figure 6-7: Placing Chassis Feet

Installing Feet on the Chassis

Installing the Chassis Feet

1. Place the chassis foot in the foot receptacle and slide the foot toward the front of the chassis. The foot should lock into place.

2. Secure the foot to the chassis using one screw enclosed in the packaging.

3. Repeat steps 1 and 2 for the remaining chassis feet.

Notes

Appendix A

SC747 Chassis Cables

A-1 Overview

This appendix lists supported cables for your chassis system. It only includes the most commonly used components and configurations. For more compatible cables, refer to the manufacturer of the motherboard you are using and our web site at: www.supermicro.com.

A-2 Cables Included with SC747 Chassis (SAS/SATA)

SC747-R1400B, SC747TQ-R1620B, SC747BTQ-R1K62B			
Part #	**Type**	**Length**	**Description**
CBL-0157L	Cable	40 cm	8-pin to 8-pin ribbon cable with tube for SGPIO
CBL-0179L	Cable	70 cm	SATA cable, flat straight-straight
CBL-0071L	Cable	30"	Round 16-pin to 16-pin ribbon FP cable
CBL-0216L	Cable	200 mm	4-pin to 4-pin middle fan power extension (PWM)
CBL-0286L	Cable	30 cm	4-pin to 4-pin rear fan power extension w/ square header (PWM)

A-4 Compatible Cables

These cables are compatible with the SC747 chassis.

Alternate SAS/SATA Cables

Some compatible motherboards have different connectors. If your motherboard has only one SAS connector that the SAS/SATA cables must share, use one of the following cables. These cables must be purchased separately.

Cable Name: SAS Cable **Quantity:** 1

Part #: CBL-0175L
Alt. Name: "Big Four"

Description: This cable has one SFF-8484 (32-pin) connector on one end and four SAS connectors (7 pins each) at the other. This cable connects from the host (motherboard or other controller) to the backplane SAS hard drive port.

Cable Name: SAS Cable **Quantity:** 1

Part #: CBL-0116L
Alt. Name: iPass or "Small Four"

Description: This cable has one iPass (SFF-8087/Mini-SAS) connector (36-pin) at one end and four SAS connectors on one end. This cable connects from the host (motherboard or other controller) to the backplane SAS hard drive port.

Extending Power Cables

Although Supermicro chassis are designed with to be efficient and cost-effective, some compatible motherboards have power connectors located in different areas.

To use these motherboards you may have to extend the power cables to the mother boards. To do this, use the following chart as a guide.

Power Cable Extenders		
Number of Pins	**Cable Part #**	**Length**
24-pin	CBL-0042L	7.9” (20 cm)
20-pin	CBL-0059L	7.9” (20 cm)
8-pin	CBL-0062L	7.9” (20 cm)
4-pin	CBL-0060L	7.9” (20 cm)

Front Panel to the Motherboard

The SC747 chassis includes a cable to connect the chassis front panel to the motherboard. If your motherboard uses a different connector, use the following list to find a compatible cable.

Front Panel to Motherboard Cable (Ribbon Cable)		
Number of Pins (Front Panel)	**Number of Pins (Motherboard)**	**Cable Part #**
16-pin	16-pin	CBL-0049L
16-pin	20-pin	CBL-0048
20-pin	20-pin	CBL-0047L
16-pin	various*	CBL-0068L
20-pin	various*	CBL-0067

* Split cables: Use these cable if your motherboard requires several different connections from the front panel.

Notes

Appendix B

SC747 Power Supply Specifications

This appendix lists power supply specifications for your chassis system.

	Gold Level 1400W (Redundant)
MFR Part #	PWS-1K41P-1R
AC Input	1100W: 100 - 140V, 50 - 60Hz, 9.5 - 13.5 Amps 1400W: 180 - 240V, 50 - 60Hz, 7.0 - 9.5 Amps
DC Output +5V standby	4 Amps
DC Output +12V	92 Amps @ 100-140V 116 Amps @ 180-240V
With Distributor	+5V: 30 Amps +3.3V: 24 Amps -12V: 0.6 Amps

	Platinum Level 1620W (Redundant)
MFR Part #	PWS-1K62P-1R
AC Input	1000W output @ 100-120V, 12-10 Amps, 50-60Hz 1200W output @ 120-140V, 12-10 Amps, 50-60Hz 1620W output @ 180-240V, 10.5-8 Amps, 50-60Hz
DC Output +12V	1000W: +12V/84 Amps; +5Vsb/4A 1200W: +12V/100 Amps; +5Vsb/4A 1620W: +12V/150 Amps; +5Vsb/4A

Notes

Appendix C

SAS-747TQ Backplane Specifications

To avoid personal injury and property damage, carefully follow all the safety steps listed below when accessing your system or handling the components.

C-1 ESD Safety Guidelines

Electrostatic Discharge (ESD) can damage electronic components. To prevent damage to your system, it is important to handle it very carefully. The following measures are generally sufficient to protect your equipment from ESD.

- Use a grounded wrist strap designed to prevent static discharge.
- Touch a grounded metal object before removing a component from the antistatic bag.
- Handle the backplane by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.
- When handling chips or modules, avoid touching their pins.
- Put the card and peripherals back into their antistatic bags when not in use.

C-2 General Safety Guidelines

- Always disconnect power cables before installing or removing any components from the computer, including the backplane.
- Disconnect the power cable before installing or removing any cables from the backplane.
- Make sure that the backplane is securely and properly installed on the motherboard to prevent damage to the system due to power shortage.

C-3 An Important Note to Users

All images and layouts shown in this user's guide are based upon the latest revision available at the time of publishing. The card you have received may or may not look exactly the same as the graphics shown in this manual.

C-4 Introduction to the SAS-747TQ Backplane

The SAS-747TQ backplane has been designed to utilize the most up-to-date technology available, providing your system with reliable, high-quality performance.

This manual reflects SAS-747TQ Revision 1.00, the most current release available at the time of publication. Always refer to the Supermicro web site at www.supermicro.com for the latest updates, compatible parts and supported configurations.

C-5 Front Connectors

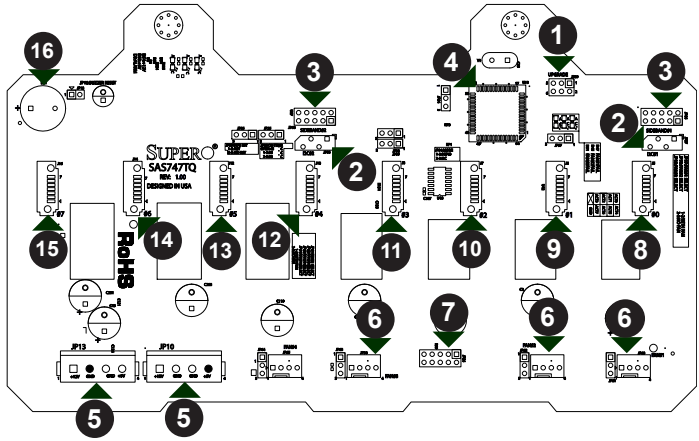


Figure C-1: Front Connectors

Front Connectors

1. Upgrade Connector: JP69
2. I²C Connector#1: JP37 and I²C Connector#2 JP95
3. Sideband Connector#1: JP66 and Sideband Connector#2: JP68
4. Chip: MG9072
5. Power Connectors: (4-pin): JP10 and JP13
6. Fan Connectors: JP54, JP56, and JP60
7. ACT_IN #0-7: JP26
8. SAS Port #0: J5
9. SAS Port #1: J6
10. SAS Port #2: J7
11. SAS Port #3: J8
12. SAS Port #4: J10
13. SAS Port #5: J12
14. SAS Port #6: J14
15. SAS Port #7: J16
16. Buzzer: BZ1

C-6 Front Connector and Pin Definitions

1. Upgrade Connector

The upgrade connector, designated JP69, is used for manufacturer's diagnostic purposes only.

2. I²C Connectors

The I²C connectors, designated JP37 and JP95, are used to monitor HDD activity and status. See the table on the right for pin definitions.

I²C Connector Pin Definitions

Pin#	Definition
1	Data
2	Ground
3	Clock
4	No Connection

3. Sideband Headers

The sideband headers are designated JP66 and JP68. For SES-2 to work properly, you must connect an 8-pin sideband cable. See the table to the right for pin definitions.

NOTE: SGPIO is the default setting for this backplane.

Sideband Headers

Pin #	Definition	Pin #	Definition
2	**SGPIO:** SDIN **I²C:** Backplane Addressing (SB5)	1	Controller ID (SB6)
4	**SGPIO:** SDOUT **I²C:** Reset (SB4)	3	GND (SB2)
6	GND (SB3)	5	**SGPIO:** SLOAD **I²C:**SDA (SB1)
8	Backplane ID (SB7)	7	**SGPIO:** SCLOCK **I²C:**SCL (SB0)
10	No Connection	9	No Connection

4. MG9072 Chip

The MG9072 is an enclosure management chip that supports the SES-2 controller and SES-2 protocols.

5. Backplane Main Power Connectors

The 4-pin connectors, designated JP66 and JP68 provide power to the backplane. See the table on the right for pin definitions.

Backplane Main Power 4-Pin Connector	
Pin#	Definition
1	+12V
2 and 3	Ground
4	+5V

6. Fan Connectors

The 4-pin connectors, designated JP54, JP56, and JP60 provide power to the fans. See the table on the right for pin definitions.

Fan Connectors	
Pin#	Definition
1	Ground
2	+12V
3	Tachometer
4	Empty

7. SAS Activity LED Header

The activity LED header, designated JP26, is used to indicate the activity status of each SAS drive. The Activity LED Header is located on the front panel. For the Activity LED Header to work properly, connect using a 10-pin LED cable.

SAS Activity LED Header Pin Definitions			
Pin #	Definition	Pin #	Definition
1	ACT IN#0	6	ACT IN#4
2	ACT IN#1	7	ACT IN#5
3	ACT IN#2	8	ACT IN#6
4	ACT IN#3	9	ACT IN#7
5	Empty	10	Ground

8-15. SAS Ports

The SAS ports are used to connect the SAS drive cables. The eight ports are designated #0 - #7. Each port is also compatible with SATA drives.

C-7 Front Jumper Locations and Pin Definitions

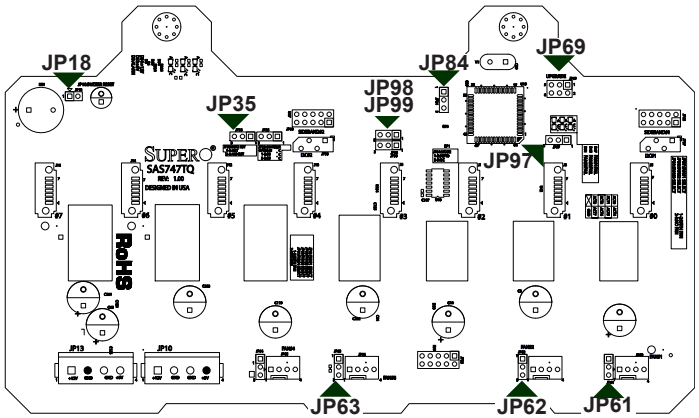
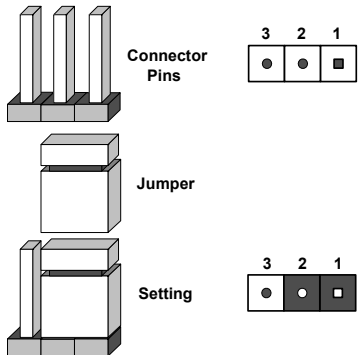


Figure C-2: Jumper Locations

Explanation of Jumpers

To modify the operation of the backplane, jumpers can be used to choose between optional settings. Jumpers create shorts between two pins to change the function of the connector. Pin 1 is identified with a square solder pad on the printed circuit board. Note: On two pin jumpers, "Closed" means the jumper is on and "Open" means the jumper is off the pins.



Jumper Settings		
Jumper	**Jumper Settings**	**Note**
JP35	1-2: Reset 2-3: No reset	MG9072 chip reset

Socket Settings		
Socket	**Socket Setting**	**Note**
JP18	Connected to the front panel	Buzzer reset* Press once to disable the buzzer Press twice to enable the buzzer

*The buzzer sound indicates that a condition requiring immediate attention has occurred.

The buzzer alarm is triggered by the following conditions:

1. Hard drive failure
2. Fan failure
3. System temperature over 45º Celsius.

Fan Jumper Settings

This backplane can use up to three fans. To utilize each fan, you must configure **both jumpers** as instructed below.

Fan Jumper Settings		
Jumper	**Jumper Settings**	**Note**
JP61	Pins 1-2: Enabled Pins 2-3: Disabled	FAN#1 enable/disable
JP97	Pins 1-2: Enabled Pins 2-3: Disabled	FAN#1 selection for MG9072 chip
JP62	Pins 1-2: Enabled Pins 2-3: Disabled	FAN#2 enable/disable
JP98	Pins 1-2: Enabled Pins 2-3: Disabled	FAN#2 selection for MG9072 chip
JP63	Pins 1-2: Enabled Pins 2-3: Disabled	FAN#3 enable/disable
JP99	Pins 1-2: Enabled Pins 2-3: Disabled	FAN#3 selection for MG9072 chip

I²C and SGPIO Modes and Jumper Settings

This backplane can utilize I²C or SGPIO. SGPIO is the default mode and can be used without making changes to your jumpers. The following information details which jumpers must be configured to use I²C mode or restore your backplane to SGPIO mode.

SGPIO and I²C Jumper Settings (Default)			
Jumper	**SGPIO Jumper Setting (Default)**	**I²C Jumper Setting**	**Note**
JP84	Pins 1-2	Pins 2-3	Controller ID #1

C-8 Front LED Indicators

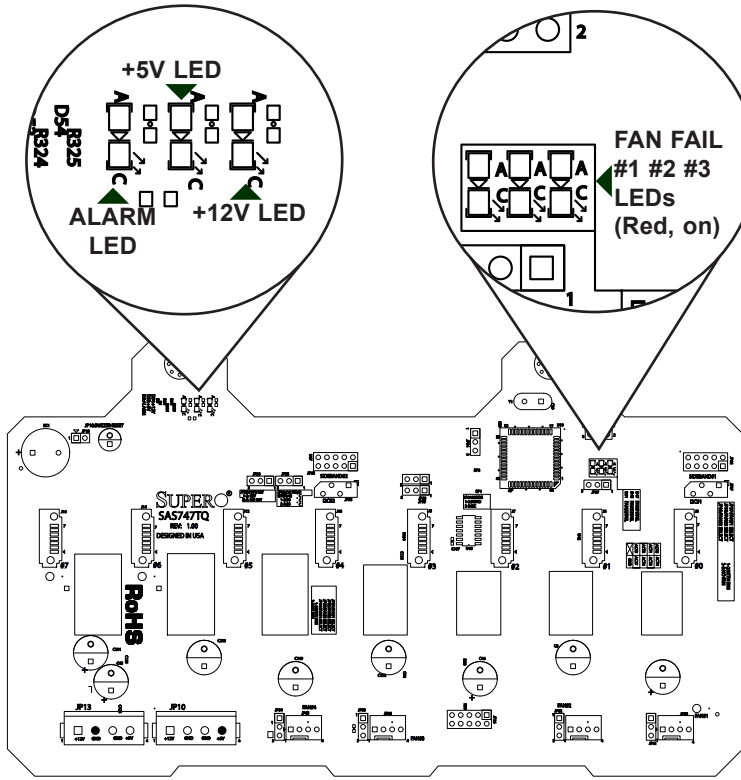


Figure C-3: Front LEDs

Front LED Indicators		
LED	**Normal State**	**Specification**
Fan#1 fail	Off	Failure in Fan#1 (Red light on, steady)
Fan#2 fail	Off	Failure in Fan#2 (Red light on, steady)
Fan#3 fail	Off	Failure in Fan#3 (Red light on, steady)
Alarm#1	Off	Overheat/drive failure
+5V	On	Backplane power failure. Light is on during normal operation.
+12V	On	Backplane power failure. Light is on during normal operation.

C-9 Rear Connectors and LED Indicators

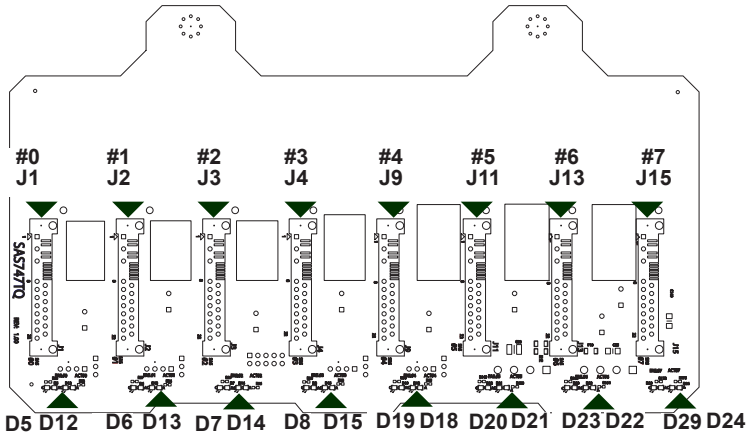


Figure C-4: Rear Connectors

Rear SAS/SATA Connectors	
Rear Connector	**SAS Drive Number**
#0	SAS/SATA HDD #0
#1	SAS/SATA HDD #1
#2	SAS/SATA HDD #2
#3	SAS/SATA HDD #3
#4	SAS/SATA HDD #4
#5	SAS/SATA HDD #5
#6	SAS/SATA HDD #6
#7	SAS/SATA HDD #7

Rear LED Indicators		
Rear LED	**Hard Drive Activity**	**Failure LED**
#0	D12	D5
#1	D13	D6
#2	D14	D7
#3	D15	D8
#4	D18	D19
#5	D21	D20
#6	D22	D23
#7	D24	D29

Appendix D

M35T1 Mobile Rack Specifications

D-1 Overview

This manual is written for system integrators, PC technicians and knowledgeable PC users who intend to integrate Supermicro's intelligent, highly expandable and cost-effective mobile rack solutions into their systems. It provides the user with detailed information for the installation and use of the M35T1 mobile rack.

The Supermicro M35T1 mobile rack offers the cutting edge technology with greater flexibility. The CSE-M35T1 supports five Serial ATA hot-swappable hard drives that yield an unparalleled storage capacity without compromising productivity by eliminating possible system downtime.

For support of the M35S mobile rack and all other SCSI support contact Supermicro's technical support department at http://www.supermicro.com.

D-2 Product Features

The M35T1 mobile rack includes the following features:

- Supports SATA
- Supports five 3.5" hot-swappable HDDs or three 5.25" HDDs

Operating Systems Supported

For the most up-to-date information visit the Supermicro web site at http://www.supermicro.com.

- Windows 2000, Windows XP, and Windows 2003
- Linux: Red Hat and SuSE

System Monitoring

- Fan failure LED
- Overheat LED indicatior
- Drive activity indicatior

D-3 An Important Note to the User

The pictures or graphics shown in this user's guide were based upon the latest PCB revision available at the time of the publishing of this manual. The M35T1 mobile rack you have received may or may not look exactly the same as the graphics shown in this manual.

D-4 Returning Merchandise for Service

A receipt or copy of your invoice marked with the date of purchase is required before any warranty service will be rendered. You can obtain service by calling your vendor for a Returned Merchandise Authorization (RMA) number. When returning to the manufacturer, the RMA number should be prominently displayed on the outside of the shipping carton, and mailed prepaid or hand-carried. Shipping and handling charges will be applied for all orders that must be mailed when service is complete.

For faster service, RMA authorizations may be requested online (http://www.supermicro.com/support/rma/).

Whenever possible, repack the mobile rack in the original Supermicro carton, using the original packaging material. If these are no longer available, be sure to pack the mobile rack securely, using packaging material to surround the mobile rack so that it does not shift within the carton and become damaged during shipping.

This warranty only covers normal consumer use and does not cover damages incurred in shipping or from failure due to the alteration, misuse, abuse or improper maintenance of products.

During the warranty period, contact your distributor first for any product problems.

D-5 SATA-M35 Backplane Specifications

To avoid personal injury and property damage, carefully follow all the safety steps listed below when accessing your system or handling the components.

D-6 ESD Safety Guidelines

Electrostatic Discharge (ESD) can damage electronic components. To prevent damage to your system, it is important to handle it very carefully. The following measures are generally sufficient to protect your equipment from ESD.

- Use a grounded wrist strap designed to prevent static discharge.
- Touch a grounded metal object before removing a component from the antistatic bag.
- Handle the backplane by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.
- When handling chips or modules, avoid touching their pins.
- Put the backplane and peripherals back into their antistatic bags when not in use.

D-7 General Safety Guidelines

- Always disconnect power cables before installing or removing any components from the computer, including the mobile rack.
- Disconnect the power cable before installing or removing any cables from the mobile rack.
- Make sure that the mobile rack is securely and properly installed on the motherboard to prevent damage to the system due to power shortage.

D-8 Introduction to SATA-M35

The M35T1 mobile rack includes a SATA-M35 Serial ATA (SATA) backplane. This backplane is designed to utilize the most up-to-date technology available, providing your system with reliable, high-quality performance.

This manual reflects models SATA-M35 Revision 1.01, the most current release available at the time of publication. Always refer to the Supermicro Web site at http://www.supermicro.com for the latest updates, compatible parts and supported configurations.

D-9 SATA-M35 Front Connectors

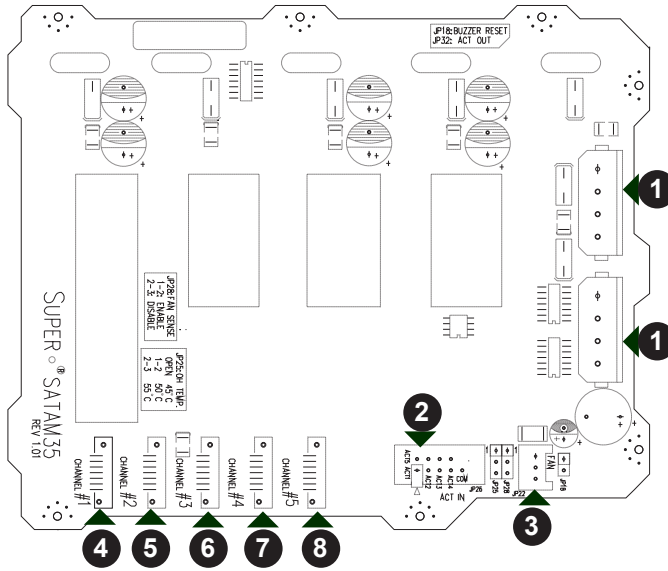


Figure D-1: SATA-M35 Front Connectors

Front Connectors

1. 4-pin Power Connectors: JP10 and JP13
2. ACT IN: JP26
3. Fan Connector: JP22
4. SATA Port #1 (Channel 1): J5
5. SATA Port #2 (Channel 2): J6
6. SATA Port #3 (Channel 3): J7
7. SATA Port #4 (Channel 4): J8
8. SATA Port #5 (Channel 5): J10

D-10 Front Connectors and Pin Definitions

1. Backplane Main Power Connectors

The 4-pin power connectors provide power to the mobile rack. See the table on the right for pin definitions.

Main Power 4-Pin Connector	
Pin#	Definition
1	+12V
2 and 3	Ground
4	+5V

2. Activity LED Connector

The activity LED connector, designated JP26, is used to indicate the activity status of each hard drive. For the activity LED header to work properly, connect a SATA LED cable.

Activity LED Connector	
Pin#	Definition
Act1/LED1	Channel 1
Act2/LED2	Channel 2
Act3/LED3	Channel 3
Act4/LED4	Channel 4
Act5/LED5	Channel 5

3. Fan Connector

The 3-pin connectors, designated JP22, provides power to the mobile rack fan. See the table on the right for pin definitions.

Fan Connectors	
Pin#	Definition
1	Ground
2	+12V
3	Tachometer

4. - 8. SATA Ports

The SATA ports are used to connect the SATA drive cables. The five ports are designated Channel #1 - #5.

D-11 SATA-M35 Front Jumpers and Pin Definitions

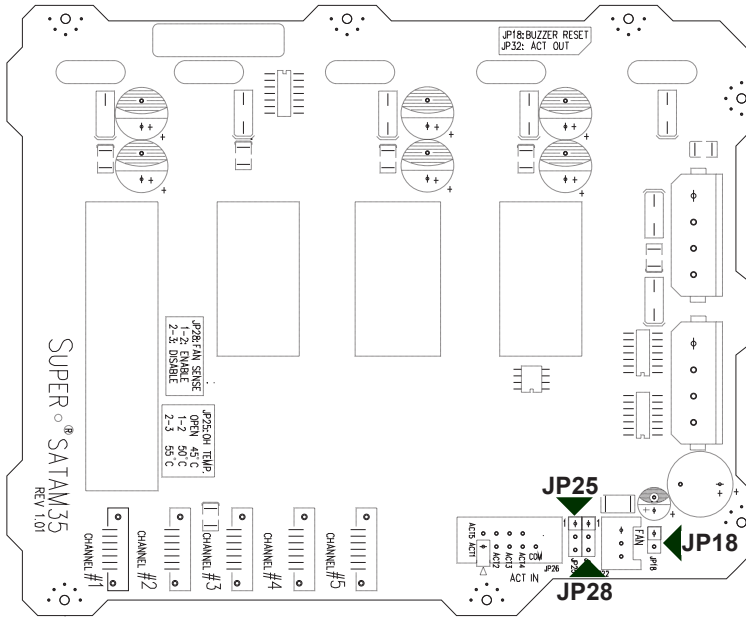


Figure D-2: SATA-M35 Front Jumpers

Jumper Settings		
Jumper	**Jumper Settings**	**Note**
JP18	Open (jumper off): Buzzer enabled Closed (jumper on): Buzzer disabled	Buzzer reset*
JP28	Pins 1-2: Fan enabled Pins 2-3: Fan disabled	Fan jumper
JP25	Open (jumper off): 45ºC 1-2: 50ºC 2-3: 55ºC	Overheat temperature settings. Buzzer activated at the temperature indicated.

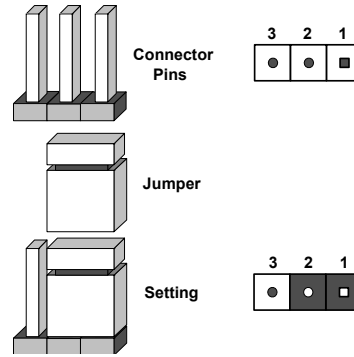
*The buzzer sound indicates that a condition requiring immediate attention has occurred.

The buzzer alarm is triggered by the following conditions:

1. Hard drive failure
2. Fan failure
3. System temperature over 45º, 50º or 55º Celsius.

Explanation of Jumpers

To modify the operation of the mobile rack, jumpers can be used to choose between optional settings. Jumpers create shorts between two pins to change the function of the connector. Pin 1 is identified with a square solder pad on the printed circuit board. Note: On two pin jumpers, "Closed" means the jumper is on and "Open" means the jumper is off the pins.



D-12 Rear Connectors and LED Indicators

The rear of the mobile rack backplane has SATA connectors and LEDs which display activity or failure status for each of the drives, as well as overheat and drive failure status.

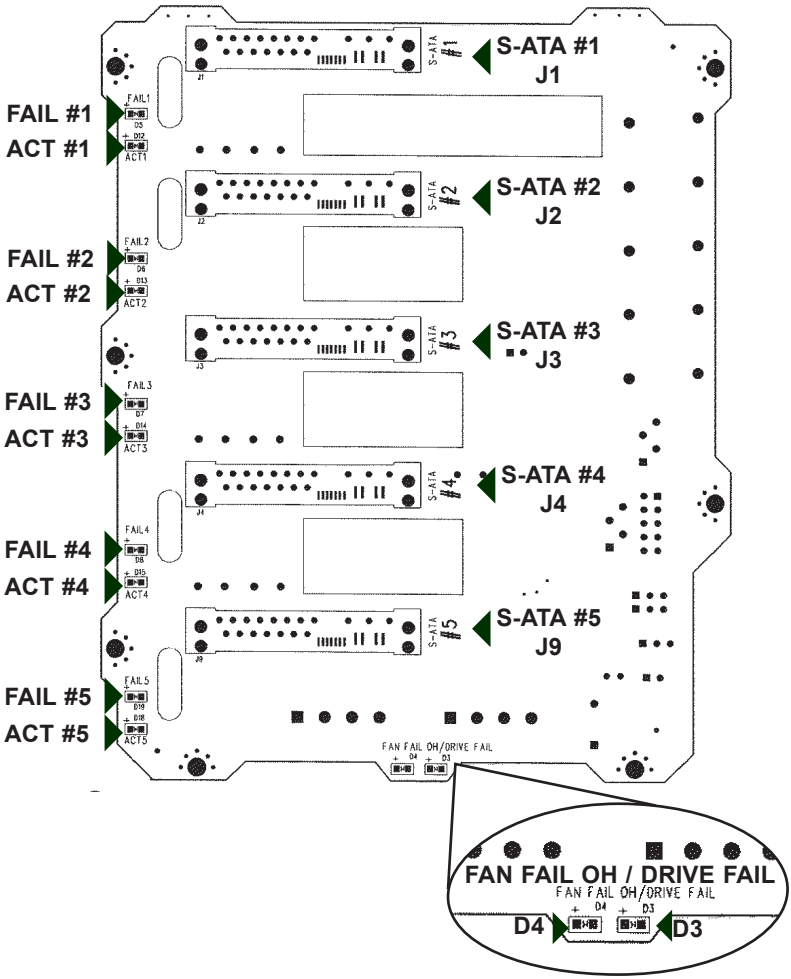


Figure D-3: Rear Connectors and LED Indicators

Rear SAS/SATA Connectors		
Rear Connector	**Reference**	**SAS/SATA Drive Number**
S-ATA #1	J1	SATA HDD #0
S-ATA #2	J2	SATA HDD #1
S-ATA #3	J3	SATA HDD #2
S-ATA #4	J4	SATA HDD #3
S-ATA #5	J9	SATA HDD #4

Rear LED Indicators		
Rear LED	**Hard Drive Activity**	**Failure LED**
S-ATA #1	D12	D5
S-ATA #2	D13	D6
S-ATA #3	D14	D7
S-ATA #4	D15	D8
S-ATA #5	D18	D19

Mobile Rack Backplane LEDs		
LED	**Hard Drive Activity**	**Failure LED**
D3	On	Overheat/drive failure LED indicator (Red light flashing, buzzer on)
D4	On	Fan failure LED indicator (Red light flashing, buzzer on)

D-12 Preparation for Installation

Tools Required

The following tools are required to install the mobile rack into the chassis:

- Phillips head screwdriver
- Antistatic strap (recommended)

Important Safety Guidelines

This product should be assembled and/or serviced by qualified and experienced technicians. To avoid personal injury and property damage, carefully follow the guidelines listed below.

Safety Guidelines

1. Power down the system, unplug the power cords from the rear of the power supplies and open the chassis cover.
2. When disconnecting cables, label them for easy identification.
3. Use a grounded wrist strap designed to prevent static discharge when handling components.
4. Save all the screws and fasteners for later use and label them for easy identification.)
5. Follow the installation procedures in the following section of this manual to remove and install the hard drives, cooling fan, and the back panel of the mobile rack.

Warning! Enterprise level hard disk drives are recommended for use in Supermicro chassis and servers. For information on recommended HDDs, visit the Supermicro Web site at http://www.supermicro.com/products/nfo/storage.cfm

D-13 Installation Procedures

Use the following installation procedures to set up the mobile rack.

WARNING! SAS IDs are assigned automatically by the backplane. Do not set ID's manually on the drives. SAS termination is enabled by default on the SAS backplane.

Removing Hard Drive Carriers from the Mobile Rack

The hard drives of the M35T1 mobile rack are mounted in drive carriers to simplify their installation and removal from the chassis. These carriers also help to promote proper airflow within the mobile rack drive bays.

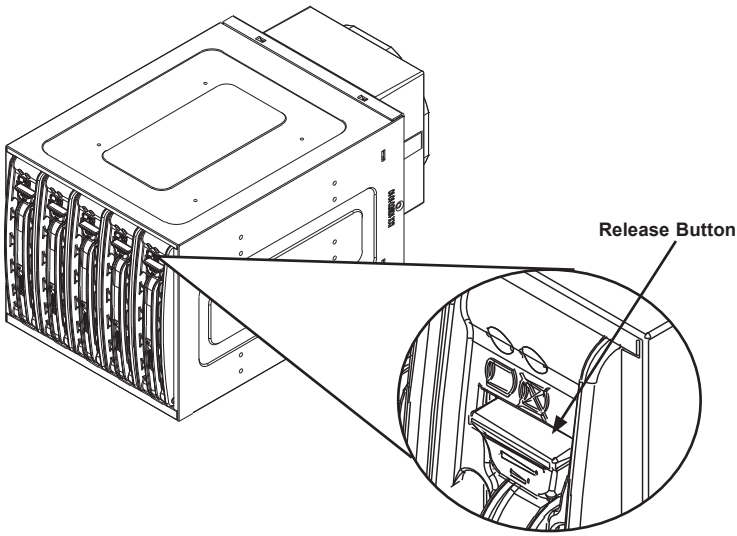


Figure D-3: Hard Drive Carrier Release Button

Removing Hard Drive Carriers from the Mobile Rack

1. Push the release button on the hard drive carrier, which will extend the drive handle.

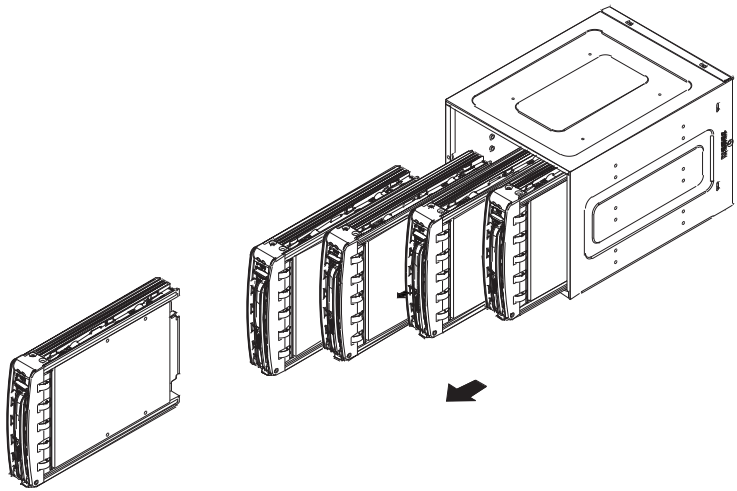


Figure D-4: Removing Hard Drives From the Mobile Rack

2. Use the drive handle to carefully pull the drive from the mobile rack.

Installing Hard Drives into the Hard Drive Carriers

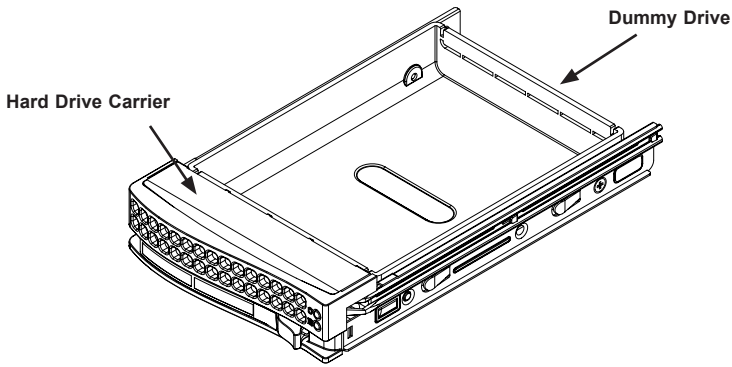


Figure D-5: The Hard Drive Carrier and Dummy Drive

Warning: Except for short periods of time while swapping hard drives, do not operate the server with the mobile rack hard drive bays empty. The hard drive carrier must have a hard drive or dummy drive installed.

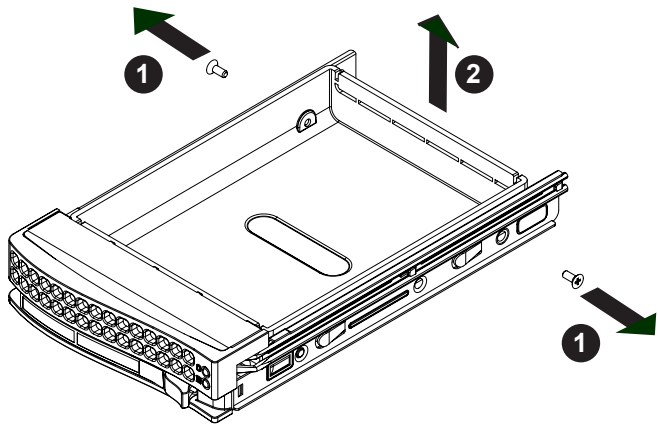


Figure D-6: Removing the Dummy Drive from the Hard Drive Carrier

Installing a Hard Drive into the Hard Drive Carrier

1. Remove the two screws holding securing the dummy drive to the hard drive carrier.

2. Remove the dummy drive from the hard drive carrier.

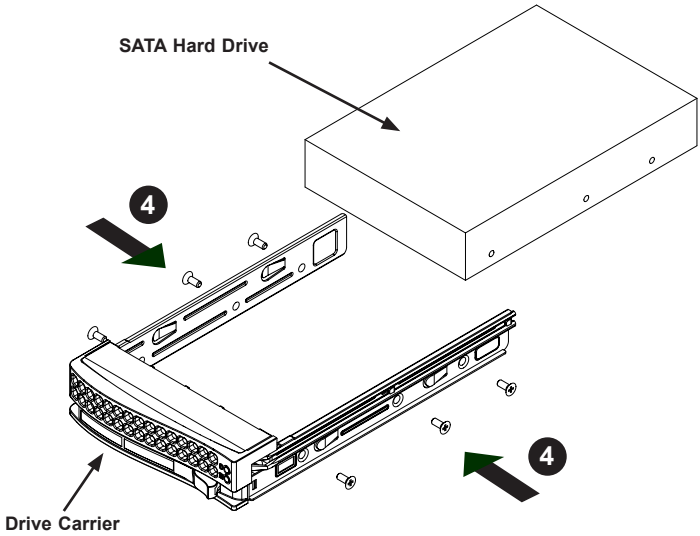


Figure D-7: Installing the Hard Drive into the Hard Drive Carrier

3. Install a new hard drive into the hard drive carrier with the printed circuit board side facing downward so that the mounting holes in the hard drive align with those in the hard drive carrier.

4. Secure the hard drive to the hard drive carrier with the six screws provided.

5. Return the hard drive carrier to the mobile rack. Make sure that the hard drive carrier handle is returned to the closed and locked position. Repeat these steps for each hard drive to be installed.

Connecting Cables to the Mobile Rack

Before connecting cables the mobile rack, the exhaust fan must be removed. In some circumstances, the backplane may need to be removed.

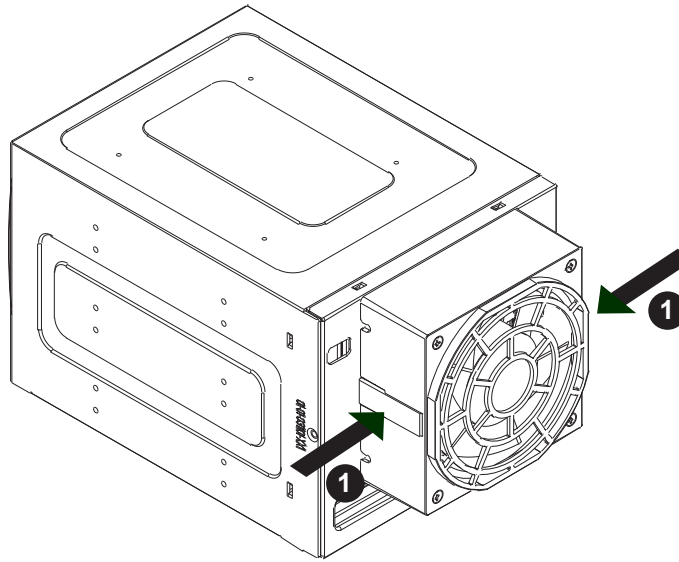


Figure D-8: Removing Mobile Rack Fan

Removing the Exhaust Fan and Connecting Cables

1. Simultaneously press inward on the tabs on each side of the fan housing.

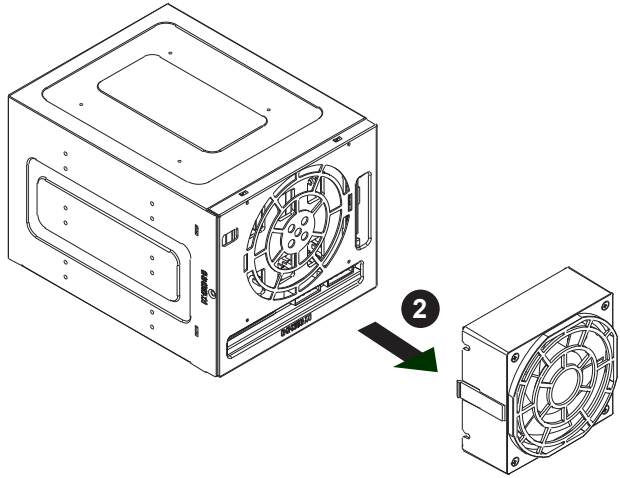


Figure D-9: Removing Mobile Rack Fan

2. Pull the exhaust fan off the rear of the mobile rack.

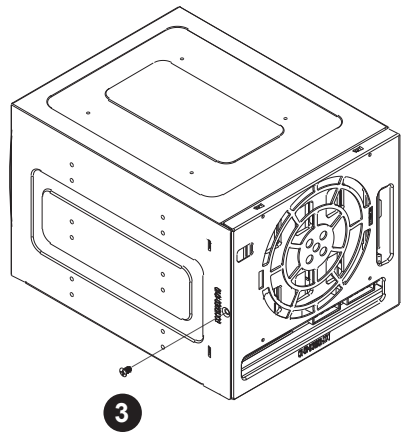


Figure D-10: Removing the Bracket Screw

3. Remove the bracket screw from the side of the mobile rack.

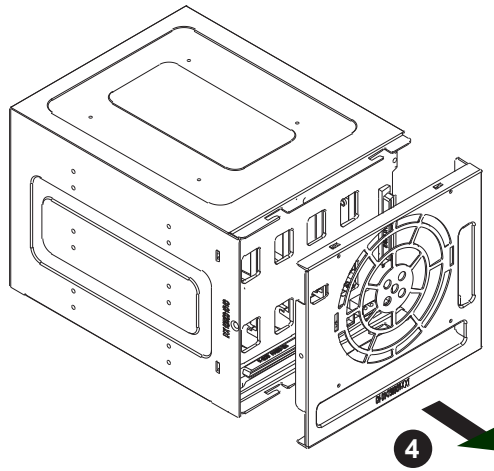


Figure D-11: Removing Mobile Rack Bracket

4. Pull the bracket from the rear of the mobile rack.

5. Connect the SATA cables and power cables to the backplane of the mobile rack.

6. Replace the bracket, bracket screw, and fan on the mobile rack and reconnect power to the chassis.

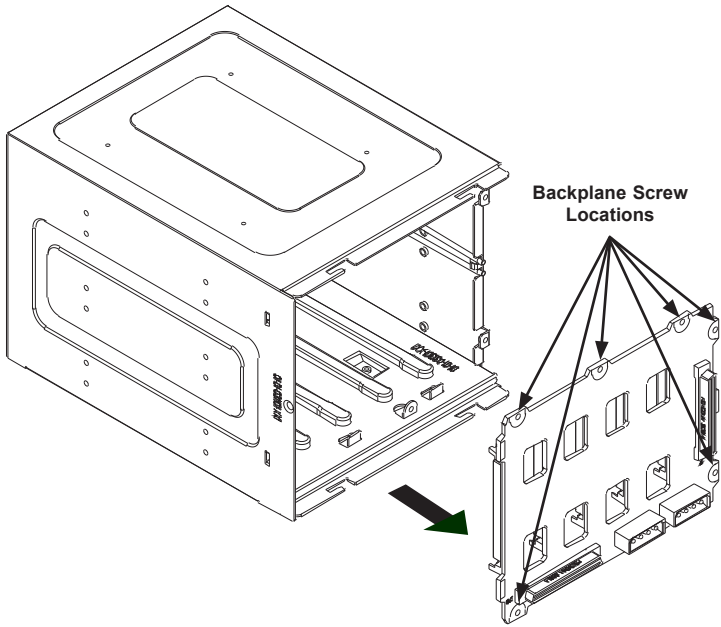


Figure D-12: Removing the Mobile Rack Backplane (Optional)

Additional Optional Installation Information

If necessary, before reassembling the mobile rack, the backplane may be removed. To remove the mobile rack backplane, remove the six screws securing the backplane to the mobile rack. Carefully pull the backplane from the rear of the mobile rack.

Appendix E

M35TQ Mobile Rack Specificaitons

E-1 Overview

This manual is written for system integrators, PC technicians and knowledgeable PC users who intend to integrate Supermicro's intelligent, highly expandable and cost-effective mobile rack solutions into their systems. It provides the user with detailed information for the installation and use of the M35TQ mobile rack.

The Supermicro M35TQ mobile rack supports SAS or SATA hard drives, and can accomodate up to five 3.5" hard drives or three 5.25" hard drives. The M35TQ showcases today's most advanced technological innovations in modular connectivity and data transferability, laying the foundation for reliable, effective and scalable solutions for tomorrow's data communications industry.

E-2 Product Features

The M35TQ mobile rack includes the following features:

- Supports SAS or SATA.
- Supports five 3.5" hot-swappable HDDs or three 5.25" HDDs.

Operating Systems Supported

For the most up-to-date information visit the Supermicro Web site at http://www.supermicro.com

- Windows 2000, Windows XP, and Windows 2003.
- Linux: Red Hat and SuSE.

System Monitoring

- Fan failure LED.
- Overheat LED indicatior.
- Drive activity indicatior.

E-3 An Important Note to the User

The pictures or graphics shown in this User's Guide were based upon the latest PCB revision available at the time of the publishing of this manual. The M35TQ mobile rack you've received may or may not look exactly the same as the graphics shown in this manual.

Electrostatic Discharge (ESD) can damage electronic components. To prevent damage to your system, it is important to handle it very carefully. The following measures are generally sufficient to protect your equipment from ESD.

- Use a grounded wrist strap designed to prevent static discharge.
- Touch a grounded metal object before removing a component from the antistatic bag.
- Handle the backplane by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.
- When handling chips or modules, avoid touching their pins.
- Put the backplane and peripherals back into their antistatic bags when not in use.

E-4 General Safety Guidelines

- Always disconnect power cables before installing or removing any components from the computer, including the mobile rack.
- Disconnect the power cable before installing or removing any cables from the mobile rack.
- Make sure that the mobile rack is securely and properly installed on the motherboard to prevent damage to the system due to power shortage.

E-5 Introduction to the SAS-M35TQ Backplane

The M35TQ mobile rack contains a SAS-M35TQ backplane. The SAS-M35TQ backplane has been designed to utilize the most up-to-date technology available, providing your system with reliable, high-quality performance.

This manual reflects SAS-M35T Revision 1.01, the most current release available at the time of publication. Always refer to the Supermicro Web site at http://www.supermicro.com for the latest updates, compatible parts and supported configurations.

E-6 Front Connectors

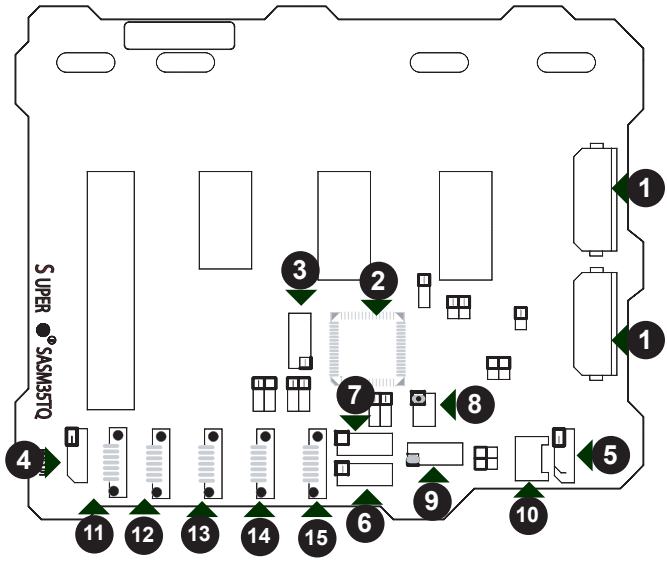


Figure E-1: Front Connectors

Front Connectors

1. 4-pin Power Connectors: JP10 and JP13
2. MG9072 Chip
3. JTAG Connector: JP47
4. I²C Connector #1: JP44
5. I²C Connector #2: JP45
6. Sideband Connector #1: JP51
7. Sideband Connector #2: JP52
8. Upgrade: JP46
9. ACT IN: JP26
10. Fan Connector: JP22
11. SAS Port #0: J5
12. SAS Port #1: J6
13. SAS Port #2: J7
14. SAS Port #3: J8
15. SAS Port #4: J10

E-7 Front Connectors and Pin Definitions

1. Mobile Rack Main Power Connectors

The 4-pin power connectors, designated JP10 and JP13, provide power to the mobile rack. See the table on the right for pin definitions.

Mobile rack Main Power 4-Pin Connector

Pin#	Definition
1	+12V
2 and 3	Ground
4	+5V

2. MG9072 Chip

The MG9072 is an enclosure management chip that supports the SES-2 controller and SES-2 protocols.

3. JTAG Connector

The JTAG connector, designated JP47, is used for diagnostic purposes only.

4. and 5. I²C Connectors

The I²C connectors, designated JP44 and JP45, are used to monitor the HDD activity and status. See the table on the right for pin definitions.

I²C Connector Pin Definitions

Pin#	Definition
1	Data
2	Ground
3	Clock
4	No Connection

6. and 7. Sideband Headers

The sideband headers are designated JP51 and JP52. For SES-2 to work properly, an 8-pin sideband cable must be connected. See the table to the right for pin definitions.

Sideband Headers

Pin #	Definition	Pin #	Definition
2	Mobile rack Addressing (SB5)	1	Controller ID (SB6)
4	Reset (SB4)	3	GND (SB2)
6	GND (SB3)	5	SDA (SB1)
8	Mobile rack ID (SB7)	7	SCL (SB0)
10	No Connection	9	No Connection

8. Upgrade Connector

The upgrade connector, designated JP46, is used for diagnostic purposes only. This connector should only be used by a certified and experienced technician.

9. Activity LED Header

The activity LED header, designated JP26, is used to indicate the activity status of each SAS drive. For the activity LED header to work properly, connect a 10-pin LED cable.

SAS Activity LED Header Pin Definitions

Pin #	Definition	Pin #	Definition
1	ACT IN#0	6	ACT IN#4
2	ACT IN#1	7	ACT IN#5
3	ACT IN#2	8	ACT IN#6
4	ACT IN#3	9	ACT IN#7
5	Ground	10	Empty

10. Fan Connector

The 3-pin connectors, designated JP22, provides power to the mobile rack fan. See the table on the right for pin definitions.

Fan Connectors

Pin#	Definition
1	Ground
2	+12V
3	Tachometer

11 - 15. SAS/SATA Ports

The SAS/SATA ports are used to connect the SAS/SATA cables from the ports to the hard drives. The five ports are designated #0 - #4.

E-8 Front Jumper Locations and Pin Definitions

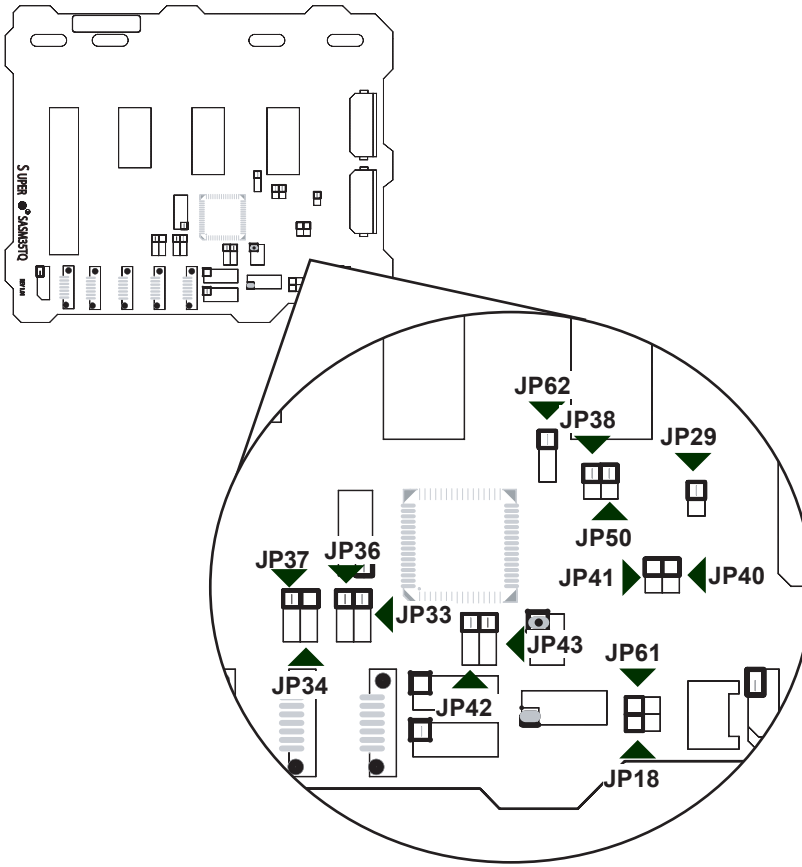
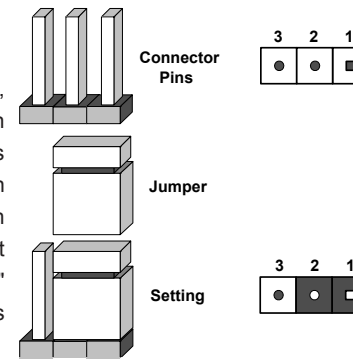


Figure E-2: Front Jumpers

Explanation of Jumpers

To modify the operation of the mobile rack, jumpers can be used to choose between optional settings. Jumpers create shorts between two pins to change the function of the connector. Pin 1 is identified with a square solder pad on the printed circuit board. Note: On two pin jumpers, "Closed" means the jumper is on and "Open" means the jumper is off the pins.



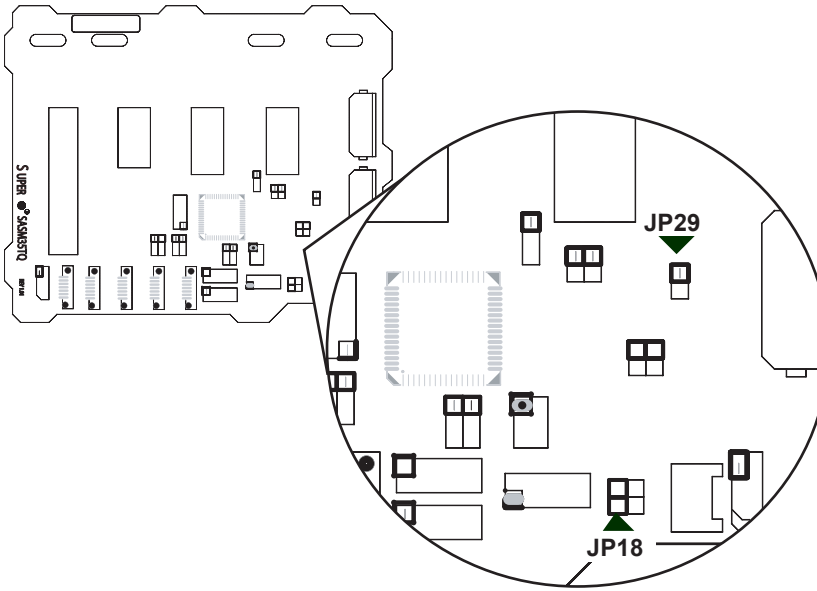


Figure E-3: Buzzer and Chip Reset Jumpers

Buzzer and Chip Reset Jumper Settings

Jumper Settings		
Jumper	**Jumper Settings**	**Note**
JP18	Open: Enabled Closed: Disabled	Buzzer reset*
JP29	Open: Default Closed: Reset	MG9072 chip reset

*The buzzer sound indicates that a condition requiring immediate attention has occurred.

The buzzer alarm is triggered by the following conditions:

1. Hard drive failure
2. Fan failure
3. System temperature over 45º Celsius.

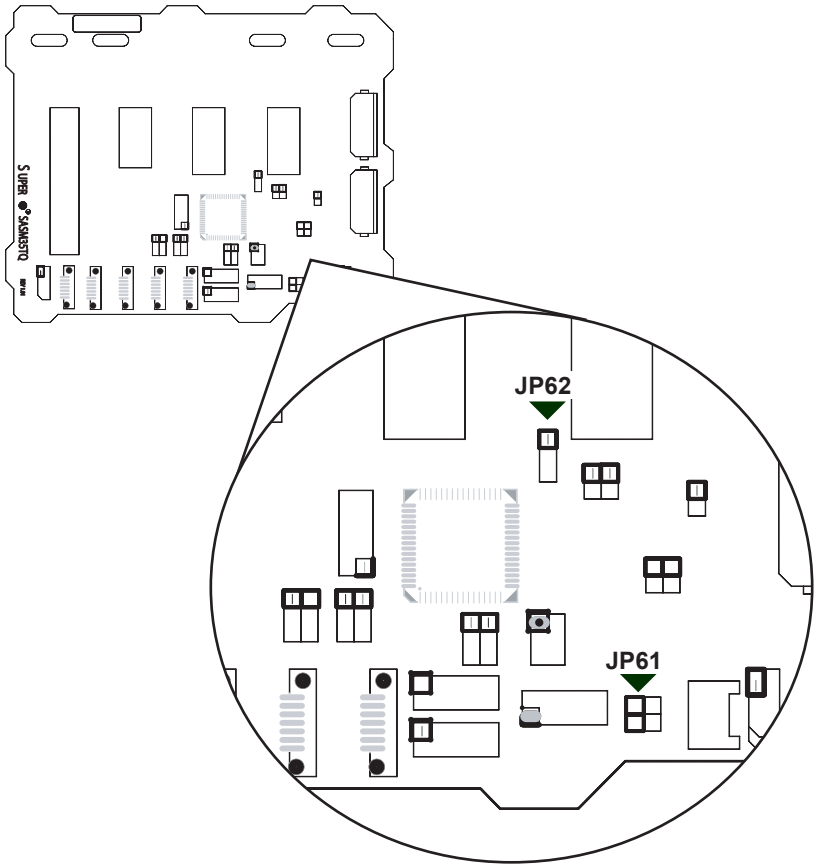


Figure E-4: Fan Jumpers

Fan Jumper Settings

This mobile rack can utilize up to four fans. To use each fan, you must configure both jumpers as instructed below.

Fan Jumper Settings		
Jumper	**Jumper Settings**	**Note**
JP61	Closed: With fan Open: No fan	FAN#1
JP62	Pins 1-2: With fan Pins 2-3: No fan	FAN#1

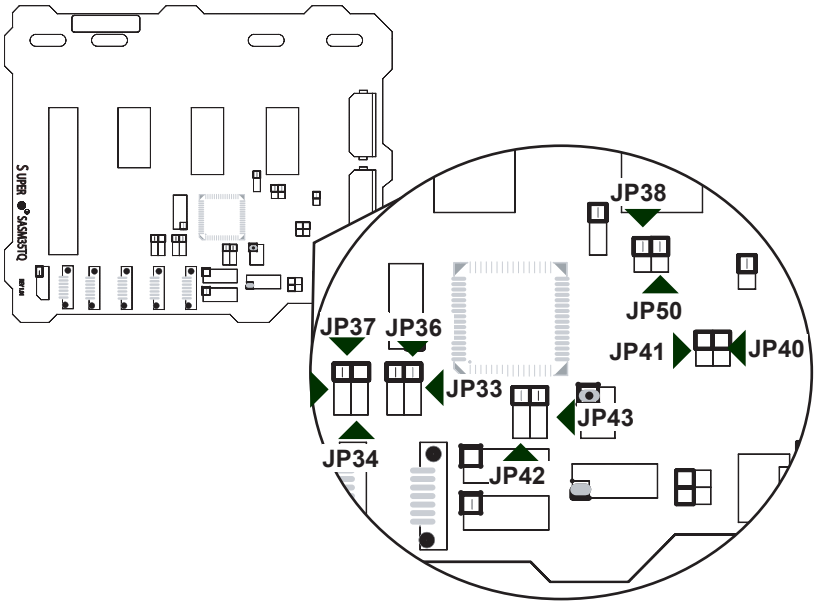


Figure E-5: I²C and SGPIO Jumpers

I²C and SGPIO Modes and Jumper Settings

This mobile rack can utilize I²C or SGPIO. I²C is the default mode and can be used without making changes to your jumpers. The following information details which jumpers must be configured to use SGPIO mode or restore your mobile rack to I²C mode.

I²C/SGPIO Settings			
Jumper	**I²C Setting (Default)**	**SGPIO Setting**	**Description**
JP33	Pins 2-3	1-2	Controller ID #1
JP34	Pins 1-2: ID#0	1-2: ID#0	Backplane ID #1
JP36	Pins 2-3	1-2	Controller ID #2
JP37	Pins 2-3: ID#1	1-2: ID#0	Backplane ID #2
JP38	Closed	Open	I²C reset #2
JP40	Open	Closed	I²C reset SDOUT #1
JP41	Open	Closed	I²C reset SDOUT #2
JP42	Pins 2-3	1-2	Backplane ID SDIN #1
JP43	Pins 2-3	1-2	Backplane ID SDIN #2
JP50	Closed	Open	I²C reset #1

E-9 Rear Connectors and LED Indicators

The rear of the mobile rack backplane has SAS/SATA connectors and LEDs which display activity or failure status for each of the drives, as well as overheat and drive failure status.

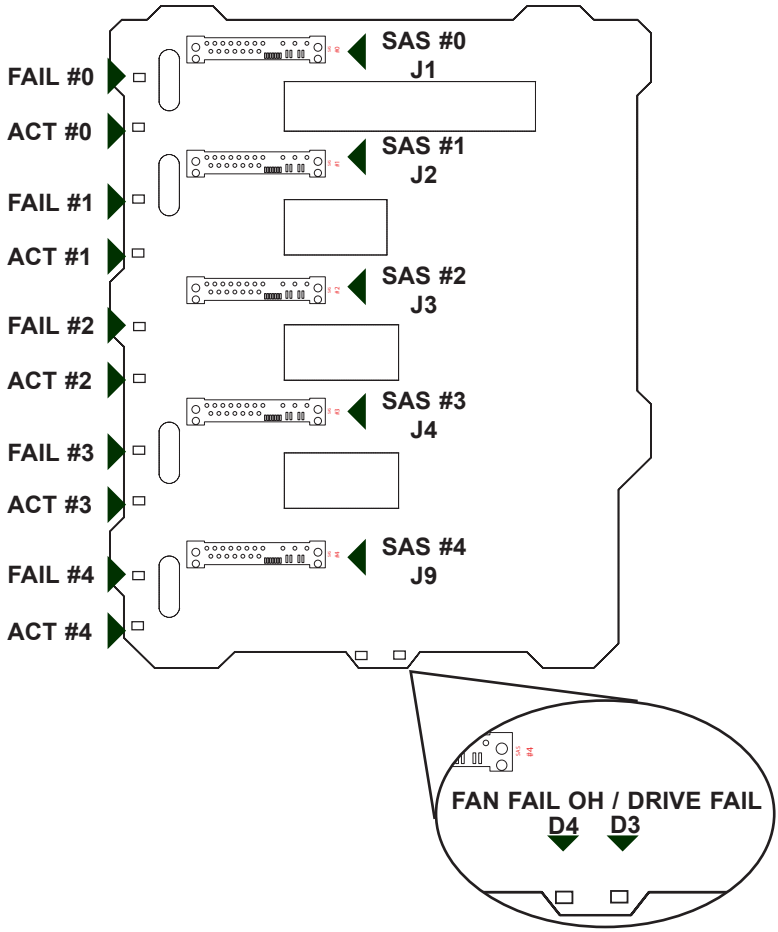


Figure E-6: Rear Connectors and LED Indicators

Rear SAS/SATA Connectors	
Rear Connector	**SAS/SATA Drive Number**
SAS #0	SAS/SATA HHD #0
SAS #1	SAS/SATA HHD #1
SAS #2	SAS/SATA HHD #2
SAS #3	SAS/SATA HHD #3
SAS #4	SAS/SATA HHD #4

Rear LED Indicators		
Rear LED	**Hard Drive Activity**	**Failure LED**
SAS #0	D12	D5
SAS #1	D13	D6
SAS #2	D14	D7
SAS #3	D15	D8
SAS #4	D18	D19

Mobile Rack Backplane LEDs		
LED	**Hard Drive Activity**	**Failure LED**
D3	On	Drive failure LED indicator (Red light flashing, buzzer on)
D4	On	Fan failure overheat LED indicator (Red light flashing, buzzer on)

E-10 Preparing for Installation

Tools Required

The following tools are required to install the mobile rack into the chassis:

- Phillips head screwdriver.
- Antistatic strap (recommended).

Important Safety Guidelines

This product should be assembled and/or serviced by qualified and experienced technicians. To avoid personal injury and property damage, carefully follow the guidelines listed below.

Safety Guidelines

1. Turn off all peripheral devices and power down the system.
2. Remove the power cords from the rear of the power supplies.
3. Disconnect the chassis from any power source.
4. When disconnecting cables, label them for easy identification.
5. Use a grounded wrist strap designed to prevent static discharge when handling components.
6. Save all the screws and fasteners for later use and label them for easy identification.)
7. Follow the installation procedures in the following section of this manual to remove and install the hard drives, cooling fan, and the back panel of the mobile rack.

E-11 Installation Procedures

Use the following installation procedures to set up the mobile rack.

WARNING!
SAS IDs are assigned automatically by the backplane. Do not set ID's manually on the drives. SAS termination is enabled by default on the SAS backplane.

Installing Hard Drives into the Mobile Rack

The hard drives of the M35TQ mobile rack are mounted in drive carriers to simplify their installation and removal from the chassis. These carriers also help to promote proper airflow within the mobile rack drive bays.

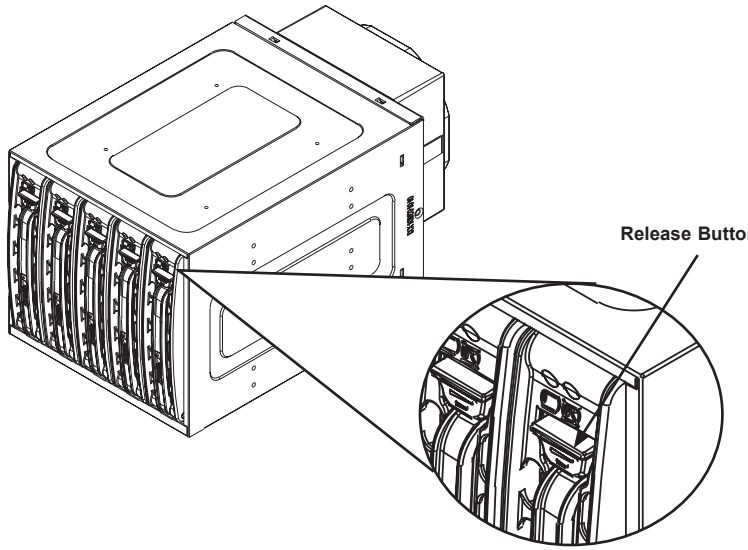


Figure E-7: Hard Drive Release Button

Removing Hard Drives from the Mobile Rack

1. Push the release button on the hard drive, which will extend the drive handle
2. Use the drive handle to carefully pull the drive from the mobile rack.

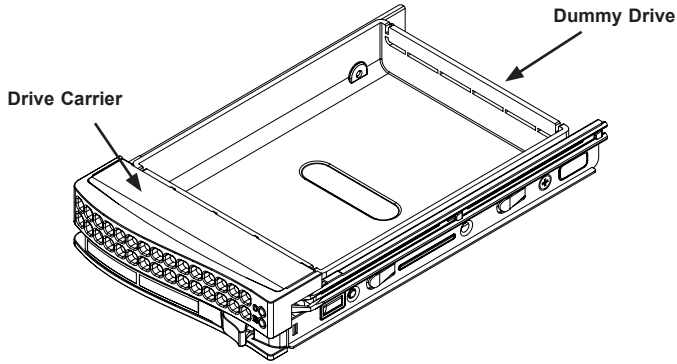


Figure E-8: Chassis Drive Carrier

Warning: Except for short periods of time while swapping hard drives, do not operate the server with the mobile rack hard drive bays empty. The hard drive carrier must have a hard drive or dummy drive installed.

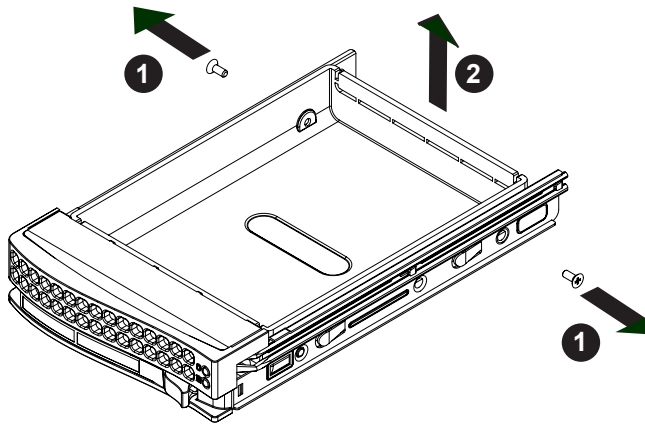


Figure E-9: Removing Dummy Drive from Carrier

Installing a Hard Drive into the Hard Drive Carrier

1. Remove the two screws holding securing the dummy drive to the carrier.
2. Remove the dummy drive from the carrier.

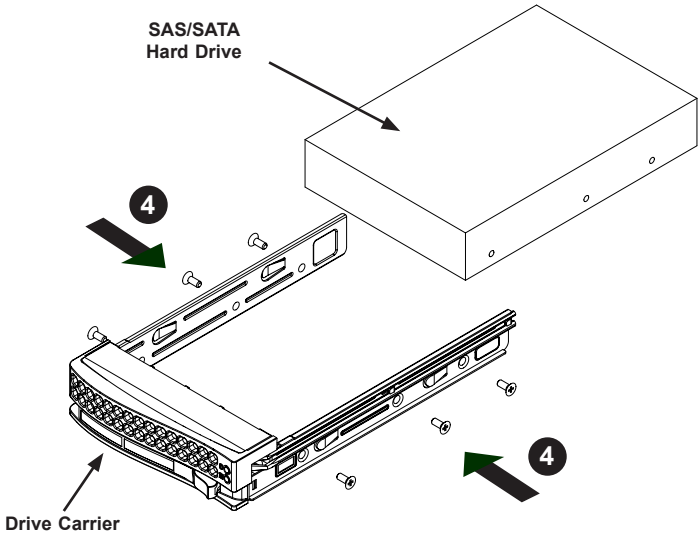


Figure E-10: Installing a Hard Drive

3. Install a new drive into the carrier with the printed circuit board side facing downward so that the mounting holes in the drive align with those in the carrier.

4. Secure the hard drive to the carrier with the six screws provided.

5. Return the drive carrier to the mobile rack. Make sure that the drive carrier handle is returned to the closed and locked position. Repeat these steps for each hard drive you want to install.

Warning! Enterprise level hard disk drives are recommended for use in Supermicro chassis and servers. For information on recommended HDDs, visit the Supermicro Web site at http://www.supermicro.com/products/nfo/storage.cfm

Connecting Cables to the Mobile Rack

Before connecting cables the mobile rack, the exhaust fan must be removed. In some circumstances, the backplane may need to be removed.

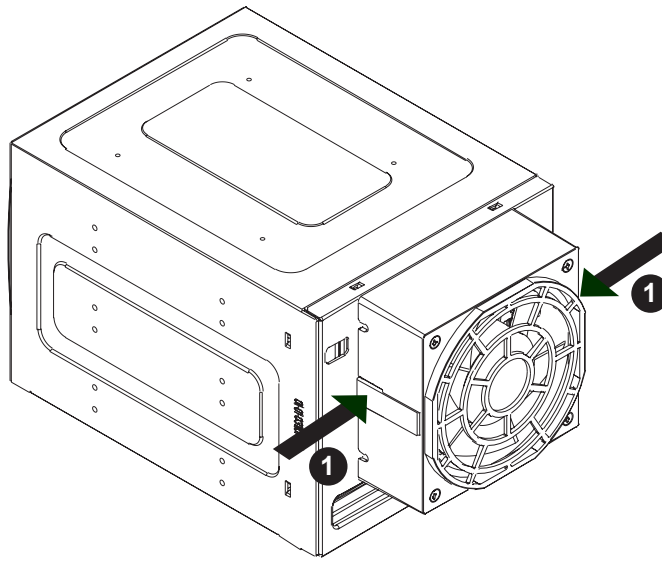


Figure E-11: Removing Mobile Rack Fan

Removing the Exhaust Fan and Connecting SAS/SATA Cables

1. Simultaneously press inward on the tabs on each side of the fan housing.

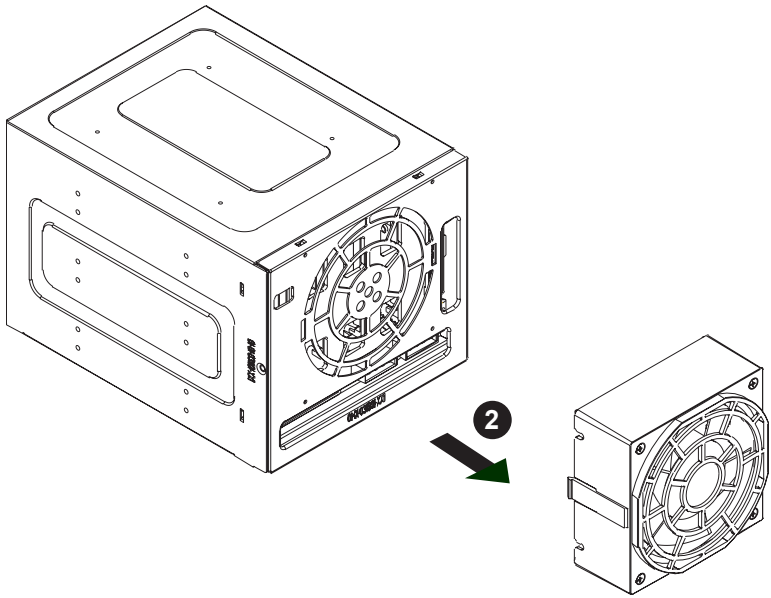


Figure E-12: Removing Mobile Rack Fan

2. Pull the exhaust fan off the rear of the mobile rack.

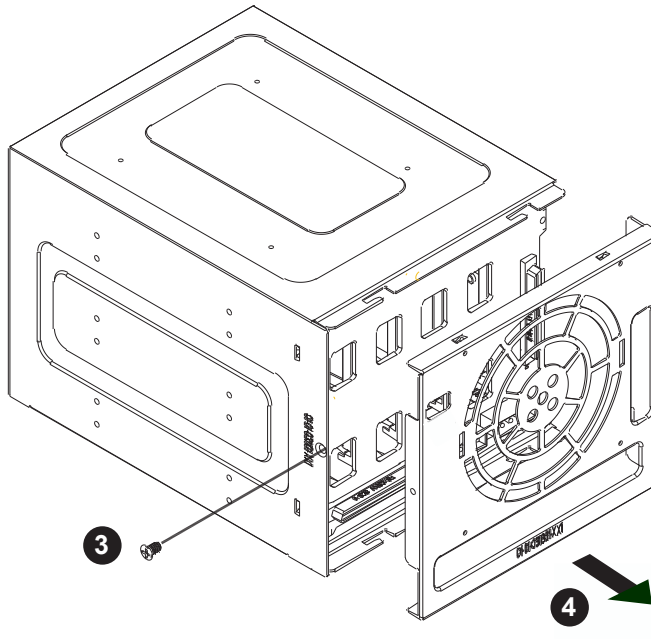


Figure E-13: Removing Mobile Rack Fan

3. Remove the bracket screw from the side of the mobile rack.
4. Pull the bracket from the rear of the mobile rack.
5. Connect the SAS/SATA cables and power cables to the backplane of the mobile rack.
6. Replace the bracket, bracket screw, and fan on the mobile rack and reconnect power to the chassis.

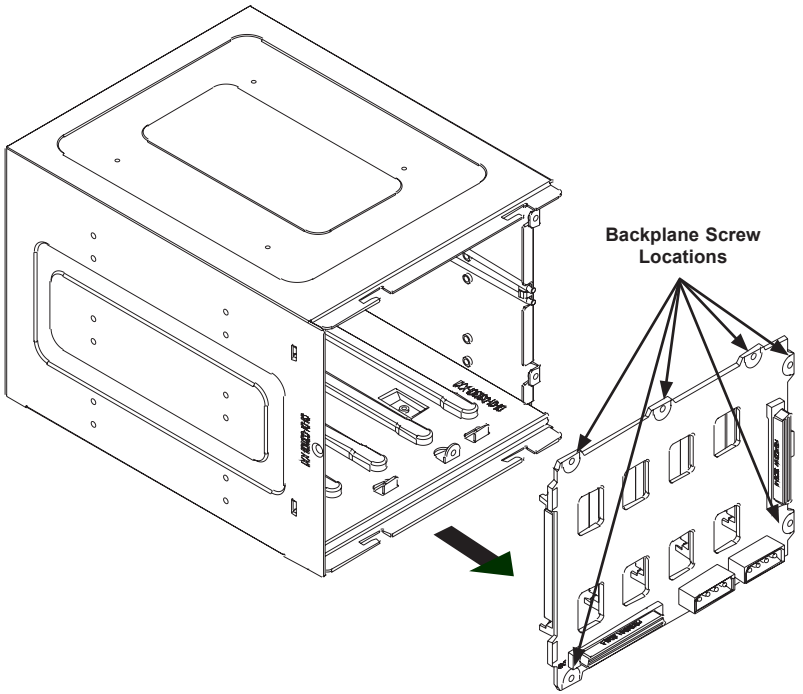


Figure E-14: Removing Mobile Rack Backplane (Optional)

Additional Optional Installation Information

If necessary, before reassembling the mobile rack, the backplane may be removed. To remove the mobile rack backplane, remove the six screws securing the backplane, and carefully pull the backplane from the rear of the mobile rack.

Notes

Disclaimer (cont.)

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